POTRERO YARD MODERNIZATION PROJECT

INFRASTRUCTURE FACILITY PROJECT AGREEMENT

BETWEEN

THE CITY AND COUNTY OF SAN FRANCISCO
ACTING BY AND THROUGH THE
SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

AND

PRG – POTRERO PROPERTIES LLC

DATED AS OF [_____, 2026]

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INFRASTRUCTURE FACILITY PROJECT AGREEMENT

POTRERO YARD MODERNIZATION PROJECT

This Project Agreement (this "**Agreement**") is made and entered into this [__] day of [_____], 2026 (the "**Effective Date**"), by and between the City and County of San Francisco ("**City**"), a municipal corporation acting in its proprietary capacity by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), and PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code, with reference to the following facts:

A. City, under the jurisdiction of the SFMTA, owns the real property commonly known as 2500 Mariposa Street in San Francisco, California, which is a 4.4-acre site comprised of Assessor's Block No. 3971-001, bounded by Bryant Streets, 17th Street, Hampshire Street, and Mariposa Street ("**Project Site**").

B. This Agreement addresses the design, construction and financing of a transit operations facility (the "**Infrastructure Facility**"), and the integration of the Infrastructure Facility, and its interface with, a future HCC (together, the "**Project**"). If implemented, one or more Housing and Commercial Components will be delivered by a HCC Project Company, under one or more separate agreements. The Infrastructure Facility and the HCC are, collectively, the "**Facility**".

C. On March 16, 2021, the Board of Supervisors of the City and County of San Francisco ("**Board of Supervisors**") adopted Ordinance No. 38-21 ("**Ordinance**"), which codifies SFMTA's authority to procure the Facility under a joint development approach.

D. On April 9, 2021, City issued a request for proposals to design, build, finance, and maintain the Infrastructure Facility and design, build, finance, operate and maintain the Housing and Commercial Component at the Project Site ("**RFP**"), and on September 12, 2022, City determined that the proposal submitted by Potrero Neighborhood Collective LLC ("**PNC**") offered the best value to City for the development of the Facility.

E. On November 2, 2022, City and PNC, a limited liability company organized under the laws of the State of Delaware, entered into a Predevelopment Agreement for the Potrero Yard Modernization Project (as amended, the "**Predevelopment Agreement**").

F. Further to the engagement of City and PNC under the Predevelopment Agreement, it was determined to deliver the Infrastructure Facility pursuant to a design-build-finance structure;

G. City and PNC agreed upon the terms provided in this Agreement for the development of the Infrastructure Facility pursuant to the processes described in the Predevelopment Agreement.

H. The Non-Profit Entity will, in turn, contemporaneously with the execution of this Agreement, enter into a project implementation agreement dated as of the date hereof (the "**Project Implementation Agreement**") with Potrero Neighborhood Collective LLC (the

"**Principal Project Company**" or "**PPC**") whereby the Principal Project Company will design and build the Project and perform certain support and administrative functions with respect to the financing of the Project, all as more particularly described in the Project Implementation Agreement, and perform on behalf of the Non-Profit Entity certain obligations of the Non-Profit Entity under this Agreement.

I. The Non-Profit Entity is not a "tax-exempt entity" but is a disregarded entity for federal tax purposes, such that the activities of the Non-Profit Entity are attributed to its sole member, the Non-Profit Parent. The Non-Profit Entity's purpose is limited to furthering the charitable purposes of the Non-Profit Parent, and to lessen the burdens of the City by assisting SFMTA in the development, construction and financing of the Project.

J. The SFMTA Board of Directors and the Board of Supervisors of the City have authorized the Work for the Project, as specified in the Contract Documents.

NOW, THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties agree as follows:

ARTICLE 1. DEFINITIONS; CONTRACT DOCUMENTS; ORDER OF PRECEDENCE; OTHER DOCUMENTS

1.1 Definitions and Interpretation

1.1.1 Definitions for certain acronyms, abbreviations and terms used in this Agreement and the other Contract Documents are contained in Exhibit 1 (Abbreviations and Definitions).

1.1.2 Unless the context otherwise requires, in this Agreement:

(a) The words "including", "includes" and "include" will be read as if followed by the words "without limitation";

(b) The meaning of "or" will be that of the inclusive "or", that is meaning one, some or all of a number of possibilities;

(c) A reference to any Party or Person includes each of their legal representatives, trustees, executors, administrators, successors, and permitted substitutes and assigns, including any Person taking part by way of novation;

(d) References to days are references to calendar days, provided that if the date to perform any act or provide any Notice falls on a non-Business Day, such act or Notice may be timely performed on the next Business Day. Notwithstanding the foregoing, requirements contained in this Agreement relating to actions to be taken in the event of an emergency and other requirements for which it is clear that performance is intended to occur on a non-Business Day, shall be required to be performed as specified, even though the date in question may fall on a non-Business Day;

(e) A reference to any Governmental Entity, institute, association or body is:

(i) if that Governmental Entity, institute, association or body is reconstituted, renamed or replaced or if the powers or functions of that Governmental Entity, institute, association or body are transferred to another organization, a reference to the reconstituted, renamed or replaced organization or the organization to which the powers or functions are transferred, as applicable; and

(ii) if that Governmental Entity, institute, association or body ceases to exist, a reference to the organization which serves substantially the same purposes or objectives as that Governmental Entity, institute, association or body;

(f) A reference to this Agreement or to any other deed, agreement, document, or instrument includes a reference to this Agreement or such other deed, agreement, document or instrument as amended, revised, supplemented or otherwise modified from time to time;

(g) A reference to any legislation or to any section or provision of it includes any amendment to or re-enactment of, or any statutory provision substituted for that legislation, section or provision;

(h) Words in the singular include the plural (and vice versa) and words denoting any gender include all genders;

(i) Headings are for convenience only and do not affect the interpretation of this Agreement;

(j) The captions of the articles, sections and subsections in the Contract Documents are for convenience only and are not to be treated or construed as part of this Agreement;

(k) Where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(l) All monetary amounts and obligations in the Contract Documents are expressed and payable in U.S. dollars;

(m) Each party must perform its obligations in accordance with this Agreement at its own cost, unless expressly provided otherwise;

(n) If this Agreement requires calculation of an amount payable to a party there must be no double counting in calculating that amount;

(o) A reference to time is a reference to Pacific Time Zone in the United States;

(p) In the event of an ambiguity in or dispute regarding the interpretation of this Agreement, this Agreement shall not be interpreted or construed against the Person who prepared this Agreement, and, instead, other rules of interpretation and construction shall be used;

(q) The Parties acknowledge and agree that: (i) the Contract Documents are the product of an extensive and thorough, arm's-length exchange of ideas, questions, answers, information and drafts during the PDA Term; (ii) each Party has been given the opportunity to independently review the Contract Documents with legal counsel; and (iii) each Party has the requisite experience and sophistication to negotiate, understand, interpret and agree to the particular language of the provisions of the Contract Documents. Accordingly, in the event of a conflict, ambiguity or inconsistency in or Contract Dispute regarding the interpretation of the Contract Documents, the Contract Documents shall not be interpreted or construed against the Party preparing it, and instead the Contract Dispute resolver shall consult other customary rules of interpretation and construction;

(r) Unless otherwise expressly stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meaning;

(s) A reference to a Section or Article is a reference to the section or article in the document or Exhibit where that Section or Article appears.

1.2 Contract Documents; Rules to Reconcile Conflicting Provisions

1.2.1 The term "Contract Documents" shall mean this Agreement and all its exhibits, including the Technical Requirements, as listed in Section 1.2.2. Each of the Contract Documents is an essential part of the agreement between the Parties. The Contract Documents are intended to be complementary and to be read together as a complete agreement.

1.2.2 Unless the context otherwise requires and except as provided otherwise in Sections 1.2.3 and 1.2.4, in the event of any conflict, ambiguity or inconsistency between any terms or provisions within the Contract Documents, the order of precedence, from highest to lowest, shall be as follows:

(a) For Design Work and other non-Construction Work:

(i) Change Orders and Unilateral Change Orders directing Non-Profit Entity to implement a City Change in accordance with this Agreement and amendments to this Agreement;

(ii) Article 1 (Definitions; Contract Documents; Order of Precedence; Other Documents) through Article 23 (Miscellaneous) and Exhibit 1 (Abbreviations and Definitions);

(iii) the Exhibits to this Agreement (excluding Exhibit 1 (Abbreviations and Definitions, Non-Profit Entity's Implementation Proposal identified in Exhibit 3, and Exhibit 18 (Technical Requirements));

(iv) Exhibit 18 (Technical Requirements);

(v) Non-Profit Entity's Implementation Proposal identified in Exhibit 3 (Implementation Proposal); provided that if City determines, in its sole discretion, that the Implementation Proposal contains a provision that is more beneficial to City than is specified elsewhere in the Contract Documents, then that provision shall take precedence; and

(vi) Project Management Plan.

(b) Without limiting Section 1.2.2(a), for Construction Work, the same order of precedence shall apply as for non-Construction Work in subsection (a), except that the Final Design Documents shall also be considered part of this Agreement and shall be included as Section 1.2.2(a)(vii) in the order of precedence subject to the following:

(i) Specifications have precedence over plans; and

(ii) Any other Deviations contained in the Final Design Documents take priority over conflicting requirements of other parts of this Agreement

but only to the extent that Non-Profit Entity specifically identifies the conflicts to City and City approves such Deviations by Notice to Non-Profit Entity.

1.2.3 In the event of any conflict, ambiguity or inconsistency within the Contract Documents, the following rules of interpretation shall apply:

1.2.3.1 If the Contract Documents contain differing provisions on the same subject matter and within the same order of precedence pursuant to Section 1.2.2, the provisions that provide greater detail or establish a higher quality, manner or method of performing the Work or use more stringent standards shall prevail.

1.2.3.2 Additional details in a lower priority Contract Document shall be given effect except to the extent they irreconcilably conflict with requirements, provisions and practices contained in the higher priority Contract Document.

1.2.3.3 If the Contract Documents contain differing provisions on the same subject matter that cannot be reconciled by applying the rules in Section 1.2.3.1 or 1.2.3.2, then the provisions contained in the document of higher order of precedence shall prevail over the provisions contained in the document of lower order of precedence, unless City, in its good faith discretion, approves or directs otherwise in writing.

1.2.3.4 In the event of an irreconcilable conflict between specific provisions of the Contract Documents and any standards, criteria, requirements, conditions, procedures, specifications or other provisions applicable to the Project established by reference to a manual or publication within a lower priority Contract Document, the specific provision of the higher priority Contract Document shall prevail over said standards or other provisions established by reference, to the extent of the irreconcilable conflict, unless City, in its good faith discretion, approves or directs otherwise in writing.

1.2.3.5 In the event of a conflict among any standards, criteria, requirements, conditions, procedures, specifications or other provisions applicable to the Project, established by reference to a manual or publication within a Contract Document or set of Contract Documents with the same order of priority, the standard, criterion, requirement, condition, procedure, specification or other provision offering the higher quality, manner or method or performing will apply unless City, in its good faith discretion, approves or directs otherwise in writing.

1.2.3.6 In the event of a conflict among the standards, criteria, requirements, conditions, procedures, specifications or other provisions of the Technical Requirements and those established by reference to a manual or publication, the Technical Requirements shall prevail.

1.2.3.7 In all other respects, in the event of a conflict, ambiguity or inconsistency within the Contract Documents, general rules concerning construction of contracts in the State shall be applicable.

1.2.4 This Section 1.2 (Contract Documents; Rules to Reconcile Conflicting Provisions) shall not apply to provisions in the Technical Requirements that are erroneous, create a potentially Unsafe Condition, or may be inconsistent with Good Industry Practice or applicable Law. Instead, such provisions shall be reconciled under Section 7.2.3.

1.2.5 Non-Profit Entity acknowledges and agrees that it had the opportunity and obligation to review the terms and conditions of this Agreement and to bring to the attention of City any conflicts, ambiguities or inconsistencies of which it is aware contained within this Agreement.

1.2.6 Incorporation into this Agreement of any part of the Implementation Proposal shall not (a) limit, modify, or alter City's right to review and approve any Submittal included in the Implementation Proposal, or submitted to City after the Implementation Proposal (including any Project Schedule), or (b) be deemed as acceptance or approval of any part of the Implementation Proposal by City that conflicts with this Agreement or the Technical Requirements.

1.2.7 If Non-Profit Entity becomes aware of any error or any conflict, ambiguity or inconsistency between or among the documents forming this Agreement, Non-Profit Entity shall promptly provide Notice to City, including the item Non-Profit Entity considers should apply based on the applicable rules in Section 1.1.2(p). Except as expressly stated in this Agreement, if (a) the conflict, ambiguity, inconsistency or error cannot be reconciled by applying the applicable rules or (b) the Parties disagree about (i) which rule applies and/or (ii) the results of the application of such applicable rule(s), then City will determine, in its reasonable discretion, which of the conflicting items is to apply under the Contract Documents and provide Notice to Non-Profit Entity before Non-Profit Entity proceeds with the applicable aspect of the Work. Notwithstanding the foregoing, the Project Implementation Agreement may be inconsistent with the Contract Documents to the limited extent that Non-Profit Entity has, in the Project Implementation Agreement, expressly reserved certain roles and responsibilities to itself under the Contract Documents and not passed those obligations on to Principal Project Company to perform.

1.3 Conflicts, Ambiguities or Inconsistency in Project Implementation Agreement and/or Non-Profit Entity's Management Plans

1.3.1 If Non-Profit Entity becomes aware of any error or any conflict, ambiguity or inconsistency between or among the Contract Documents and the Project Implementation Agreement, Non-Profit Entity shall promptly provide Notice to City. In the event of any conflict, inconsistency or ambiguity between or among the Contract Documents and the Project Implementation Agreement, the terms and conditions of the Contract Documents shall control and the Non-Profit Entity and Principal Project Company shall revise the Project Implementation Agreement, as applicable, to be consistent with the Contract Documents or cure the ambiguity or inconsistency in a manner satisfactory to City. Notwithstanding the foregoing, the Project Implementation Agreement may be inconsistent with the Contract Documents to the extent relating to the roles and responsibilities that have been expressly reserved for the Non-Profit Entity under the Project Implementation Agreement with respect to the Project Agreement (including to exercise rights and remedies and/or pursue relief under the Project Agreement) and/or to the timelines and other means under or by which obligations of the Non-Profit Entity under the Contract Documents have been passed down to the PPC. City shall not be bound by any such inconsistencies with the Project Agreement as they may relate to Non-Profit Entity's obligations, and City's rights and remedies, under the Project Agreement.

1.3.2 In the event of any conflict between or among the Non-Profit Entity's Project Management Plan and any of the Contract Documents, or if any provisions in Non-Profit Entity's Project Management Plan are in conflict, ambiguous or inconsistent, Non-Profit Entity shall

modify the Project Management Plan, as applicable, to be consistent with the Contract Documents or cure the ambiguity or inconsistency in a manner satisfactory to City.

1.4 Reference Documents

1.4.1 City has provided the Reference Documents to Non-Profit Entity for the purposes of disclosure and, in the case of general industry and general governmental manuals and publications, for guidance regarding Good Industry Practice. Reference Documents are for information only, and are not mandatory or binding on Non-Profit Entity, except to the extent that the Contract Documents incorporate specific provisions of the Reference Documents by reference.

1.4.2 Non-Profit Entity acknowledges and agrees that City does not give any warranty, representation or undertaking in respect of the Reference Documents including that the Reference Documents:

(a) Are complete, accurate or fit for purpose;

(b) Are in conformity with the requirements of the Contract Documents, Regulatory Approvals or Laws; or

(c) Represent all of the information in City's possession or power relevant or material in connection with the Project; provided, however, that City represents and warrants that it has not affirmatively and intentionally provided a Reference Document that is knowingly (based solely on City's Actual Knowledge) and materially false with the intent to mislead Non-Profit Entity.

1.4.3 Non-Profit Entity acknowledges and agrees that, except as provided in this Agreement:

(a) It has, before Commercial Close, conducted its own analysis and review of the Reference Documents upon which it places reliance;

(b) Any use or reliance on such Reference Documents by Non-Profit Entity shall be solely at its own risk;

(c) Except to the extent that the Contract Documents incorporate specific provisions of the Reference Documents by reference, no NPE-Related Entity is entitled to make any Claim, cause of action or Loss against City in connection with the Reference Documents, including on the grounds:

(i) of any misunderstanding or misapprehension in respect of the Reference Documents;

(ii) of any conclusions any NPE-Related Entity may draw from or any action or forbearance in reliance on the Reference Documents;

(iii) of any failure to disclose or make available to any NPE-Related Entity any information, documents or data or to review or update the Reference Documents; or

(iv) that the Reference Documents were inaccurate, incomplete, or not fit for purpose; and

(d) The Reference Documents may include interpretations, extrapolations, analyses, and recommendations about data, design solutions, technical issues and solutions, construction and installation means and methods, and maintenance means and methods. Such interpretations, extrapolations, analyses, and recommendations are (i) preliminary in nature and, in many cases, obsolete, (ii) not intended to express the views or preferences of City, or represent any statement of approval or acceptance thereof by City, and (iii) not intended to form the basis of Non-Profit Entity's design solutions, technical solutions or construction means and methods.

ARTICLE 2. NATURE OF AGREEMENT; TERM

2.1 Nature of Agreement; Predevelopment Agreement

2.1.1 City hereby grants to Non-Profit Entity the exclusive right, and Non-Profit Entity accepts the obligation and agrees, during the Term, to design, build and finance the Infrastructure Facility.

2.1.2 Non-Profit Entity acknowledges and agrees that the Predevelopment Agreement does not apply to this Agreement or the Parties' obligations hereunder, and that any deliverables provided by Lead Developer to City pursuant to the Predevelopment Agreement, or approvals obtained from City pursuant to the Predevelopment Agreement, do not apply to this Agreement unless any such deliverable, or approved plan or submittal, is expressly incorporated into the text of or otherwise attached to this Agreement. For the avoidance of doubt, the foregoing shall not apply to, release or waive any obligations of any party under the Predevelopment Agreement that survive the completion or termination thereof, as more particularly set forth in the Predevelopment Agreement.

2.2 Right of Entry; Condition of Site

2.2.1 Subject to Section 7.5 (Acquisition of Real Property) and except as set forth in Section 2.2.2, NPE-Related Entities shall have the right to enter onto the Project Site upon completion of the City Relocation Scope (which shall be at least 90 days after issuance of NTP 1) (the "**Access Date**") and throughout the Warranty Period to carry out Non-Profit Entity's obligations under this Agreement; provided, however, Non-Profit Entity may undertake construction activities related to the Project that are not located on or at the Project Site and are on property on which Non-Profit Entity has obtained legal access so long as such construction activities (i) avoid any impacts to City and SFMTA operations in any manner on, at or near the Project Site; (ii) avoid impacts to SFMTA relocation activities occurring on, at or near the Project Site, including completion of the City Relocation Scope and impacts to all existing OCS adjacent to the Project Site that must remain in place and fully functioning until completion of the City Relocation Scope; and (iii) are undertaken only after the conditions set forth in Exhibit 15B (Conditions to NTP 2 – Commencement of Construction Work) have been satisfied in connection with Offsite Utility Work being performed between NTP 1 and NTP 2 that is not located on or at the Project Site. After the Termination Date, NPE-Related Entities may enter onto the Project Site to perform post-termination obligations either based on the right of entry granted in Section 17.6.3 (Relinquishment and Possession of Project) or under a separate right of entry provided by City in writing. Without otherwise limiting the rights of the Non-Profit Entity to relief under this Agreement, Non-Profit Entity shall comply, and shall ensure that NPE-Related Entities comply, with all agreements, easements, rights of entry, covenants, conditions, restrictions and other instruments applicable to the Project Site.

2.2.2 City shall ensure that the Project Site is in the City Ready for Move Condition by the date that is 90 days after issuance of NTP 1. The City Relocation Scope may not commence until after the Project Site is in the City Ready for Move Condition. Non-Profit Entity may access the Project Site before the Access Date solely to implement the City Relocation Scope. Non-Profit Entity is responsible to obtain all required approvals prior to demolition. Additionally, if any power, water, and or other Utilities need to be maintained during demolition, such lines should be temporarily relocated as necessary and or protected by Non-Profit Entity. Should any furniture or portable equipment remain at the Project Site after City vacates the Project Site and

after Non-Profit Entity fully performs the City Relocation Scope, those items shall be removed and/or disposed of by Non-Profit Entity. Removal of any Hazardous Materials, Utility infrastructure, walls, fixtures, flooring, paint, tanks, and any other building features that currently exist and, upon vacation by the City of the Project Site, will not be removed by City, are deemed released to Non-Profit Entity and are the responsibility for Non-Profit Entity, at its sole cost, in connection with demolition and, except as set forth in this Agreement with respect to subsurface Hazardous Materials which are not Known or Suspected Hazardous Materials, Non-Profit Entity shall not be entitled to any additional compensation or time in connection therewith.

2.3 Term

This Agreement shall take effect on the Effective Date and shall remain in effect until 30 years after the Substantial Completion Deadline, subject to the right of the Parties to terminate this Agreement earlier in accordance with the terms of this Agreement.

2.4 Title

2.4.1 General

The Parties acknowledge and agree that:

(a) Non-Profit Entity is not the legal or equitable owner or lessee of the Project Site or the Infrastructure Facility improvements for any purpose;

(b) Non-Profit Entity's rights under this Agreement are derived solely from its status as an independent contractor under this Agreement, and not as tenant, lessee, easement holder, optionee, lienor, mortgagee, purchaser or owner of any other interest in real property; and

(c) The payments to be received by Non-Profit Entity under this Agreement are for services to be performed by Non-Profit Entity, and are not payments in the nature of rent, fees with respect to real property, or purchase price of real property.

2.4.2 Possessory Interest Tax

2.4.2.1 City hereby informs Non-Profit Entity, in accordance with California Revenue and Taxation Code section 107.6, that, notwithstanding Section 2.4.1 (General), (i) this Agreement may create one or more possessory interests, (ii) any possessory interest created by this Agreement may be subject to property taxation, and (iii) Non-Profit Entity may be subject to payment of property taxes levied on such possessory interest. Accordingly, Non-Profit Entity agrees on behalf of itself and its permitted successors and assigns to timely report on behalf of City to the County Assessor the information required by San Francisco Administrative Code Section 23.39, as amended from time to time, and any successor provision. Non-Profit Entity further agrees to provide such other information as may requested by City to enable City to comply with any reporting requirements for possessory interests that are imposed by applicable Law.

2.4.2.2 If it is determined that a possessory interest is created by this Agreement and the County Assessor seeks to levy an assessment or tax on such possessory interest, then:

(a) Non-Profit Entity shall (i) provide Notice to City not later than 3 Business Days after it becomes aware of the assessment or tax bill, and (ii) deliver copies of all documentation relating thereto no later than 3 Business Days following receipt;

(b) Non-Profit Entity shall cooperate and consult regularly with City, and follow City's reasonable directions, concerning tax protest, litigation strategy, refund claims and appeals process in any such circumstance. At City's request or in absence of a direction from the City sent to Non-Profit Entity no later than 10 days prior to any filing deadline, Non-Profit Entity shall timely (i) contest the assessment, and (ii) file refund claims;

(c) If the Board of Supervisor has specifically authorized and approved, by resolution, the City's assumption of the payment, in whole, of such possessory interest taxes under this Agreement**,** the City will make a payment of the tax liability on behalf of the Non-Profit Entity (including any penalties for late payment or nonpayment and interest imposed, to the extent such penalties or interest resulted from Non-Profit Entity's failure to comply or timely comply with Section 2.4.2.2(a) or (b)). To the extent that penalties and interest have been imposed as a result of Non-Profit Entity's failure to comply or timely comply with Section 2.4.2.2(a) or (b), Non-Profit Entity will reimburse City for any such payment of penalties and interest, including Recoverable Costs. If Non-Profit Entity receives any refund of the tax (including a refund of any penalties and interest) pursuant to a claim for refund or other appeal, Non-Profit Entity shall pay to City an amount equal to such refund within 15 days of receipt (but only to the extent of payments previously made by City pursuant to this Section 2.4.2.2(c));

(d) Non-Profit Entity shall submit to City an invoice (in a format acceptable to City) on a monthly basis in arrears for all actual and reasonable costs and expenses incurred by Non-Profit Entity in opposing the imposition of any such possessory interest tax, together with detailed, supporting documentation evidencing same. If Non-Profit Entity is awarded attorneys' fees in connection with any related appeal or litigation, such costs will not also be reimbursed by the City to Non-Profit Entity. Within 30 Business Days of receipt of such invoice and supporting documentation, subject to Section 11.5 (Disputed Amounts), City will reimburse Non-Profit Entity for such invoiced amount; and

(e) City reserves the right to direct Non-Profit Entity to assign to the City any appeals rights available under applicable Law in order for City to directly assume the property tax appeal or litigation. Any such assignment shall be effected through an agent's authorization or similar document acceptable to both Non-Profit Entity and the City.

Nothing in the foregoing constitutes a notification to Non-Profit Entity of whether a potential possessory interest could be created under any HCC Agreement, the Housing and Commercial Component, or any interest that Non-Profit Entity may acquire under Section 7.5.2 (Temporary Interests in Property).

2.4.2.3 Non-Profit Entity shall include in all Contracts or other agreements entered into by or on behalf of Non-Profit Entity with third parties that could reasonably be expected to result in the creation of a possessory interest under this Agreement, provisions substantially similar to those in this Section 2.4.2, including the obligation to report, contest, and pay any possessory interest taxes, and to cooperate with the City in accordance with this Section. Non-Profit Entity shall provide copies of such agreements to the City upon request.

2.4.3 Passage of Title

Title to all materials, equipment, tools and supplies furnished under the Contract Documents for incorporation into the Project shall pass to City, free and clear of all liens or other charges of any kind or nature, upon incorporation into the Project.

2.4.4 Intellectual Property

Except for NPE Intellectual Property and Third Party IP, title to any Intellectual Property to the extent made, conceived, prepared or reduced to practice as part of the Work, incorporated into the Project, including any improvements, modifications, enhancements or derivative works to or of the City IP shall vest in City at the earliest of creation, conception, preparation or reduction to practice.

2.4.5 Documents of Title

Non-Profit Entity shall furnish or execute all necessary documents of title within 90 days of receiving a written request from City.

2.4.6 Care, Custody and Control Responsibilities

Passage of title to City shall not affect Non-Profit Entity's care, custody and control responsibilities. Non-Profit Entity shall be responsible for care, custody and control of all components of the Project, including all materials, equipment, tools and supplies described in Section 2.4.3 (Passage of Title) until the Substantial Completion Date, except Non-Profit Entity shall (i) be responsible for care, custody and control of all elements of the Project that will be owned by Utility Owners or Authorities Having Jurisdiction until acceptance of such elements by the relevant Third Party and (ii) remain responsible for all warranty obligations under the Contract Documents to City and, as applicable, Utility Owners and Authorities Having Jurisdiction, following the Substantial Completion Date.

2.5 Limitation on Non-Profit Entity's Rights

Notwithstanding anything to the contrary in the Contract Documents, Non-Profit Entity has no power or authority to make any commitments on City's behalf or to execute agreements in the name of or on behalf of City. Non-Profit Entity shall not enter into any agreement with any Governmental Entity, Utility Owner, property owner or other Third Party having regulatory jurisdiction over any aspect of the Project or Work or having any property interest affected by the Project or the Work that in any way purports to obligate City, or states or implies that City has an obligation to carry out any installation, design, construction, maintenance, repair, operation, control, supervision, regulation or other activity during or after the end of the Term, unless City otherwise approves in writing.

ARTICLE 3. FINANCIAL CLOSE

3.1 Requirements for Financial Close

3.1.1 Obligation to Achieve Financial Close

Subject to the Parties' respective rights to terminate this Agreement before Financial Close pursuant to Sections 3.6 (No-Fault Termination) and 3.7 (Non-Profit Entity's Failure to Achieve Financial Close), Non-Profit Entity shall achieve Financial Close by no later than the Financial Close Deadline.

3.1.2 Date of Financial Close

Subject to Section 3.4.2(a), Non-Profit Entity shall determine the date of Financial Close (the "**Scheduled Financial Close Date**"), which shall be subject to a minimum 60 calendar days' prior Notice to City and no later than the Financial Close Deadline. After such determination, Non-Profit Entity shall have the right to modify the Scheduled Financial Close Date, provided that (i) Non-Profit Entity must provide City with prompt Notice of any such change; (ii) Non-Profit Entity shall not modify the Scheduled Financial Close Date within 14 days of such date without City's approval, in its reasonable discretion; (iii) the new date for the Scheduled Financial Close Date shall not be sooner than 10 days after delivery of Notice to City; and (iv) the modified Scheduled Financial Close Date shall be no later than the Financial Close Deadline.

3.2 Financial Close Requirements and Deliverables

3.2.1 Delivery of Financing Agreements and Other Documents

3.2.1.1 Not later than 60 days before the Scheduled Financial Close Date (or Delayed Financial Close Date, as applicable), Non-Profit Entity shall deliver to City, for City's review and comment, near final drafts of the Project Implementation Agreement. Such draft shall be sufficiently advanced such that all material terms are incorporated therein. In the event any material term included in the drafts of the Project Implementation Agreement provided to City under this Section 3.2.1.1 is amended prior to Financial Close, Non-Profit Entity shall deliver to City, for City's review, comment and approval, a copy of such proposed amendment(s), such submittal to be no later than 10 days before the Scheduled Financial Close Date. For purposes of this Section 3.2.1.1, a material amendment shall include the following: (i) a change that differs materially from any commitments or provisions set forth in the Finance Plan; (ii) a change which would alter the risk allocations in this Agreement, the Project Implementation Agreement or any other Key Contract; (iii) a change which could increase the liability of City for termination compensation in the event of a termination; (iv) a change that would result in an Affordability Event; (v) a change that would cause a Delayed Financial Close Date; (vi) a change in any of the Security Documents; and/or (vii) a change under any of the conditions precedent to Financial Close under the Financing Documents.

3.2.1.2 Not later than 30 days before the Scheduled Financial Close Date (or Delayed Financial Close Date, as applicable), Non-Profit Entity shall deliver or cause to be delivered to City, for City's review and comment, near final drafts of the Initial Financing Documents, Direct Agreement and D&C Contract. Such drafts shall be sufficiently advanced such that all material terms are incorporated into the applicable Principal Project Document or Financing Document. Non-Profit Entity shall also deliver to City, for City's review and comment, a list of other Key

Contracts, and a draft of the model audit report related to the proposed Financial Model Update in accordance with Section 4.7.4 (Financial Model Audits). City will review the list of other Key Contracts and may request, and Non-Profit Entity shall promptly provide to City, substantially final drafts of the Key Contracts. In the event any material term included in the drafts of the Principal Project Documents or Financing Documents provided to City under this Section 3.2.1.2 is amended prior to Financial Close, Non-Profit Entity shall deliver to City, for City's review, comment and approval, a copy of such proposed amendment(s), such submittal to be no later than 10 days before the Scheduled Financial Close Date. For purposes of this Section 3.2.1.2, a material amendment shall include the following: (i) a change that differs materially from any commitments or provisions set forth in the Finance Plan; (ii) a change which would alter the risk allocations in this Agreement, the Project Implementation Agreement or any other Key Contract; (iii) a change which could increase the liability of City for termination compensation in the event of a termination; (iv) a change that would result in an Affordability Event; (v) a change that would cause a Delayed Financial Close Date; (vi) a change in any of the Security Documents; and/or (vii) a change under any of the conditions precedent to Financial Close under the Financing Documents.

3.2.1.3 City will provide its comments on any initial submission of these documents no later than 10 Business Days after their submission and on any amendments to such documents no later than 5 Business Days after their submission, with such comments, in each case, being limited to addressing (i) changes in these documents from those approved by City during the PDA Term; (ii) changes in this Agreement or the commercial or legal structure of the Project; (iii) changes arising out of changed circumstances, new events or occurrences or additional information after the date of approval by City during the PDA Term; (iv) clarifications, errors, ambiguities or conflicts in such documents; (v) the relationship and interface of the Infrastructure Facility and the HCC; (vi) the impacts and implications of any decision by Non-Profit Entity to bifurcate the Financial Close for the Infrastructure Facility and the HCC; (vii) changes in applicable Law or Standards and Specifications; (viii) any change to a material term, as set forth in Section 3.2.1.1 or Section 3.2.1.2, as applicable); and (ix) inconsistencies between such documents and the terms of this Agreement (including the risk allocations).

3.2.2 City Deliverables

To support the Non-Profit Entity's achievement of Financial Close, City shall:

(a) on or before 30 days before the Scheduled Financial Close Date and in connection with the issuance of any bonds:

(i) provide and authorize Non-Profit Entity to include, in the preliminary and final official statement for the Tax-Exempt Bonds or any other capital markets issuance with respect to the Project, SFMTA's most recent audited financial statements together with economic information with respect to SFMTA, and provide such documents and information as required to comply with disclosure requirements under applicable Laws, provided that Non-Profit Entity has provided City with a list of required documents and information at least 15 Business Days before such documents and information are required;

(ii) agree to customary continuing disclosure as reasonably acceptable to City and the underwriter of any Project Debt; and

(iii) provide customary certificates as reasonably requested by Non-Profit Entity and as reasonably acceptable to City;

(b) on or before three Business Days prior to the Scheduled Financial Close Date, deliver each of the following items to Non-Profit Entity subject to customary escrow terms and to City's approval to release from escrow:

(i) an executed legal opinion of the City's Attorney's Office substantially in the form attached hereto as Exhibit 5D (Form of Opinion from City's Legal Counsel);

(ii) an executed certificate updating, as of the date of Financial Close, City's representations and warranties set forth in Section 19.2 (City Representations and Warranties); and

(iii) a counterpart signature page for the Direct Agreement executed on behalf of City;

(c) take any reasonably required authorizing actions in a reasonably timely manner; and

(d) provide customary documents, certificates or undertakings (or, as applicable, a copy of the same certified by City as true, complete and accurate) that Non-Profit Entity may reasonably request from City as necessary to comply with (i) disclosure requirements under applicable Laws, or (ii) customary underwriter requirements, in each case in connection with issuance of bonds or any other capital markets issuance; provided, however, that none of the documents supplied in accordance with this Section 3.2.2(d) shall be construed as providing a legal opinion binding on City.

3.2.3 Base Interest Rate Fluctuation

3.2.3.1 City will adjust the APC to offset 100% of the impact of fluctuations (increases and decreases) in the Base Interest Rates used in the Finance Plan that have occurred during the Bank Debt Rate Protection Period and/or the Bond Rate Protection Period, as applicable.

3.2.3.2 City will adjust the APC to offset the impact of fluctuations (increases and decreases) in the credit spreads for any Bond Financing proposed in the Finance Plan that have occurred during the Bond Rate Protection Period. City shall assume 100% of the credit spread fluctuation risk (relative to the Baseline Credit Spreads). City shall not accept increases in credit spreads in respect of bonds which are part of Non-Profit Entity's financing resulting from the final credit rating of such bonds being lower than the indicative investment grade rating(s) of such bonds provided in the Finance Plan.

3.2.3.3 Adjustments to the APC related to Base Interest Rates fluctuations shall be implemented in accordance with Exhibit 5F (APC Adjustment for Base Interest Rate and Credit Spread Fluctuation).

3.2.4 Conditions Precedent to Financial Close

3.2.4.1 Financial Close will occur upon Non-Profit Entity's satisfaction of each of the following conditions:

(a) Non-Profit Entity has delivered or caused to be delivered to City, in form and substance similar to the drafts submitted to City pursuant to Section 3.2.1.1 and including any changes made pursuant to City's comments under Section 3.2.1.3, fully executed versions of:

(i) Initial Financing Documents;

(ii) Direct Agreement(s); and

(iii) Key Contracts, together with an updated list of Key Contracts;

(b) Non-Profit Entity has delivered a certification signed by its chief financial officer or equivalent officer, certifying to the following:

(i) Non-Profit Entity has satisfied (or upon Financial Close, will satisfy) all conditions precedent to the effectiveness of commitments of the Lenders under the Initial Financing Documents or such conditions have been waived if not satisfied, as applicable;

(ii) each of the documents delivered by Non-Profit Entity to City pursuant to Section 3.2.4.1(a) is a true, complete and accurate copy of the original;

(iii) all representations and warranties of Non-Profit Entity under the Contract Documents remain true as of the Financial Close Date, except for any representation or warranty made as of a specified date, in which case such representation or warranty shall be true as of the specified date and Non-Profit Entity shall provide Notice to City if any such representation is not true and correct as of the Financial Close Date; and

(iv) Non-Profit Entity has performed and complied with all covenants and obligations of Non-Profit Entity under the Contract Documents to have been performed or complied with as of the Financial Close Date;

(c) Non-Profit Entity has delivered to City, on or before one Business Day prior to the date of Financial Close, an interim Financial Model Update consistent with Section 4.7 (Financial Model and Financial Model Updates) that incorporates any proposed amendments to the Base Case Financial Model agreed to by the Parties on or before such date, including those agreed to pursuant to any preliminary calculations under Section 3.2.3 (Base Interest Rate Fluctuation), together with the related Financial Modeling Data;

(d) Non-Profit Entity has delivered to City (i) one or more legal opinion(s) of Non-Profit Entity's in-house or external counsel substantially in the form attached

hereto as Exhibit 5E (Form of Opinion from Non-Profit Entity's Legal Counsel) and with customary qualifications and assumptions reasonably acceptable to City;

(e) A Financial Model in accordance with Section 4.7 (Financial Model and Financial Model Updates) which reflects, to City's reasonable satisfaction;

(f) Certificate from an insurer that meets the requirements in Section 10.1.2.1 (Insurers), certifying that all Insurance Policies required to be effected and maintained in accordance with this Agreement in connection with the Work to be performed during the D&C Period (whether City is required to be an insured or not) are in force and effect (or will be in full force and effect following receipt of the insurance premium payable from the proceeds of Financial Close), and such evidence as is necessary to demonstrate the compliance of each such policy with the requirements of this Agreement;

(g) Each Payment Bond and Performance Bond required under Section 10.2 (Performance Security) has been obtained, meets the requirements of Section 10.2 (Performance Security) and is in full force and effect, and Non-Profit Entity has delivered to City originals or copies, as required, of each Payment Bond and Performance Bond; and

(h) Principal Project Company has delivered to City (i) one or more legal opinion(s) of Principal Project Company's in-house or external counsel substantially in the form attached hereto as Exhibit 5G (Form of Opinion from Principal Project Company's Legal Counsel) and with customary qualifications and assumptions reasonably acceptable to City.

3.2.5 Waiver of Conditions Precedent to Financial Close

3.2.5.1 A condition precedent is only waived if the Party for whom the benefit of the condition precedent is provided gives Notice to the other Party of the waiver prior to the Financial Close Deadline.

3.2.5.2 When all of the Non-Profit Entity conditions precedent to Financial Close have been satisfied by Non-Profit Entity or waived by City, City shall provide Notice to Non-Profit Entity confirming that all of the Non-Profit Entity conditions precedent have been satisfied or waived and the date upon which the last of the conditions precedent was satisfied or waived.

3.2.5.3 When all of the City conditions precedent to Financial Close have been satisfied by City or waived by Non-Profit Entity, Non-Profit Entity shall provide Notice to City confirming that

all of the City conditions precedent have been satisfied or waived and the date upon which the last of the City conditions precedent was satisfied or waived.

3.2.5.4 Upon satisfaction of all conditions precedent to Financial Close, City will provide Notice to Non-Profit Entity confirming the date upon which Financial Close was achieved.

3.2.6 Mandatory Terms of Project Debt, Financing Agreements and Other Documents

The Project Debt and Financing Documents (including the Initial Financing Documents) shall comply with the Financing Document Terms.

3.2.7 Disbursement to City at Financial Close

The Project Debt and Financing Documents (including the Initial Financing Documents) shall provide for a disbursement to City at Financial Close of $5,000,000. City currently intends to utilize such amount to pay the Substantial Completion Development Fee if and when earned by Non-Profit Entity, subject to Section 11.6.1 and Section 11.6.3. Non-Profit Entity shall cause Collateral Agent to make such disbursement to City as part of Financial Close.

3.3 Post-Financial Close Requirements and Deliverables

3.3.1 Non-Profit Entity shall deliver or cause to be delivered to City, on or before two Business Days following Financial Close, each of the items required under Section 4.7.3 (Replacement of Financial Model) replacing the Base Case Financial Model with a Financial Model Update that reflects all changes agreed by the Parties as of the date of Financial Close, as well as:

(a) a Financial Model Update that includes any final revisions to the interim Financial Model Update delivered under Section 3.2.4.1(c) to incorporate the Base Interest Rates and credit spreads applicable on the date of Financial Close under the Initial Financing Agreements and any other agreed upon revisions;

(b) a model audit report related to the proposed Financial Model Update in accordance with Section 4.7.4 (Financial Model Audits); and

(c) a form of written amendment that (i) effects the replacement of the Financial Model in effect with the proposed Financial Model Update, and (ii) addresses all other related amendments to this Agreement required as a result of the amended Financial Model, including any amendments to the definitions of APC, API and Key Ratios, as applicable.

3.3.2 Upon the satisfaction of each of the conditions precedent to Financial Close set forth in Section 3.2.4 (Conditions Precedent to Financial Close), and the delivery and mutual approval of the Financial Model Update and documents required by Section 3.3.1, City and Non-Profit Entity shall enter into the amendment.

3.3.3 City shall return to or to the order of Non-Profit Entity the Financial Close Security within five Business Days after reaching Financial Close, provided that Non-Profit Entity has

delivered or caused to be delivered the items required under this Section 3.3 (Post-Financial Close Requirements and Deliverables).

3.4 Potential Adverse Events and Mitigation

3.4.1 The Parties acknowledge that any one or more Adverse Events may occur during the period between the Effective Date and the Scheduled Financial Close Date. If any such Adverse Event is the sole cause for Non-Profit Entity's failure or inability to satisfy any of its obligations under Section 3.2.4 (Conditions Precedent to Financial Close) by the Financial Close Deadline or Delayed Financial Close Date, as applicable, then Section 3.4.2 shall apply.

3.4.2 Each Party will promptly provide Notice to the other Party if an Adverse Event has occurred ("**Adverse Event Notice**"). The Party provide an Adverse Event Notice may indicate in the notice the potential impact of the event on the schedule for Financial Close. City may elect, in its sole discretion, to consult and work with Non-Profit Entity to mitigate the actual or anticipated impacts of the occurrence of such event(s). City will provide Notice to Non-Profit Entity of City's decision to either take mitigation actions, or to not take mitigation actions, within 15 days of the Adverse Event Notice. If City elects mitigation, the Parties will negotiate in good faith to mutually agree on the actual mitigation actions to be undertaken by each Party. City anticipates that the Parties may take one or more of the following actions to mitigate the impacts and for Non-Profit Entity to be able to achieve Financial Close:

(a) City may agree to delay Financial Close to a date not later than 120 days after the Scheduled Financial Close Date (the "**Delayed Financial Close Date**"), in which case, if the Delayed Financial Close Date is after the last day of the original Finance Plan Validity Period, then:

(i) Non-Profit Entity shall extend the validity of the Financial Close Security to a date no earlier than 15 days later than the Delayed Financial Close Date;

(ii) If the Adverse Event was an Adverse Event set forth in clauses (a)-(h) of the definition of "Adverse Event", City shall compensate Non-Profit Entity for the actual cost of extending the validity of the Financial Close Security to the Delayed Financial Close Date within 45 days after receiving Non-Profit Entity's request and supporting documentation for such payment;

(iii) If the Adverse Event was an Adverse Event set forth in clauses (a)-(h) of the definition of "Adverse Event", Non-Profit Entity shall be entitled to escalate its D&C Contract Amount to adjust for escalation of labor, materials and equipment costs, if any, based on the change in: (1) the average of the BCI published each calendar month during the 12 calendar months preceding the Scheduled Financial Close Date; and (2) the average of the BCI published each calendar month during the 12 calendar month period preceding the Financial Close Date; and

(iv) Non-Profit Entity shall prepare a Financial Model Update in accordance with Section 4.7.2 (Updates to the Financial Model);

(b) City may change the amount or timing of either Milestone Payment, provided that Non-Profit Entity shall be entitled to recover from City the reasonably incurred costs associated with such process which, in the case of Milestone Payment 2, shall be subject to the conditions set out in Section 2 of Exhibit 4 (Payment Mechanism);

(c) City may increase the APC and/or API by an amount required to mitigate the relevant Adverse Event, including by an amount greater than 10% of the aggregate of the APC and API;

(d) Non-Profit Entity may:

(i) conduct negotiations for at least 30 days with any or all of Non-Profit Entity's existing Lenders to increase, renew or extend their commitments, as applicable, provided that, any material deviations from the terms and conditions of the original commitments in Non-Profit Entity's Financial Proposal may be accepted by Non-Profit Entity only with City's approval; or

(ii) conduct a timely, competitive process to obtain new financing commitments (a "**Project Debt Competition**") to supplement or replace any of the original financing commitments in Non-Profit Entity's Financial Proposal; in which case, any such negotiations or Project Debt Competition (A) shall be transparent and open to City and its advisors, and (B) shall have the key objective of obtaining debt financing for the Project at the lowest-cost commercially available (given the terms and conditions of the Contract Document) and on terms and conditions otherwise reasonably acceptable to Non-Profit Entity and City;

(e) upon the occurrence of an Affordability Event, Non-Profit Entity may elect to assume the cost and expense of that portion of the increase in the aggregate of the APC and API that exceeds 10%; and/or

(f) either Party may take any other action mutually agreed upon by City and Non-Profit Entity.

3.4.3 The Parties acknowledge that the objective of the mitigation actions described in Section 3.4.2, and any others mutually agreed upon by the Parties, is to create circumstances allowing Financial Close to be achieved on terms that at a minimum will allow Non-Profit Entity to satisfy its obligation to obtain all financing required for the Project on terms and conditions substantially similar to those in the Financial Proposal. The Parties further acknowledge that if an Adverse Event set forth in clauses (i)-(j) of the definition of "Adverse Event" occurs, the objective of the time extension and mitigation actions described in Section 3.4.2 and any others mutually agreed upon by the Parties is for Non-Profit Entity to have an opportunity to address the impacts of such Adverse Event with its Lenders in order for Non-Profit Entity to comply with its obligations to achieve Financial Close by the Delayed Financial Close Date.

3.4.4 The Parties further acknowledge that the Non-Profit Entity shall not be required to take any action which is contrary to the interest of fulfilling its charitable mission or the charitable

purposes of the Non-Profit Parent, each as determined by the Non-Profit Entity, in its reasonable discretion, and the Non-Profit Entity shall not be required to undertake any mitigation measure that might be available arising out of its status as a wholly-owned disregarded entity of a not-for-profit corporation, but which measure would not normally be available to a private commercial party. For certainty, it shall be reasonable for Non-Profit Entity to refuse to take such action described above if (i) Non-Profit Entity shall have received an opinion of counsel that it is reasonably likely that such action will have the effect set forth above or (ii) Non-Profit Parent or Non-Profit Entity has received notice from the Internal Revenue Service that an effect described above is imminent. Notwithstanding the foregoing, Non-Profit Entity represents and warrants that it has reviewed the Contract Documents and, as of the Effective Date, it is not aware of (y) any such action or mitigation measure described in the Contract Documents that would be contrary to its charitable mission, to the charitable purposes of Non-Profit Parent or to Non-Profit Entity's status as a not-for-profit corporation or (z) any circumstance falling within the limitations of this Section 3.4.4 that would deprive the City of the material benefits of the Project, the Work or the terms of the Contract Documents.

3.4.5 Non-Profit Entity shall not take any action at any time under the Contract Documents, the Project Implementation Agreement or otherwise (including in connection with matters unrelated to the Project) that will adversely impact its charitable purpose, the charitable purpose of Non-Profit Parent, the disregarded entity status of Non-Profit Entity or Non-Profit Parent's status as a 501(c)(3) entity or the tax exempt status of the Tax-Exempt Bonds.

3.5 Permitted Excuses from Achieving Financial Close

3.5.1 With respect to an Adverse Event set forth in clauses (a)-(h) of the definition of "Adverse Event", Non-Profit Entity's obligation to achieve Financial Close by the Financial Close Deadline shall be excused if one or more events described in Section 3.4.1 has occurred, provided that:

(a) City notifies Non-Profit Entity that it will not take any action described under Section 3.4.2;

(b) City fails to provide Notice to Non-Profit Entity within 15 days of receipt of the Adverse Event Notice from Non-Profit Entity of City's decision to either take mitigation actions, or to not take mitigation actions;

(c) the Parties undertake one or more actions under Section 3.4.2, but the effect of such actions does not allow Non-Profit Entity to satisfy its obligation to obtain all financing required for the Project on terms and conditions substantially similar to those in the Financial Proposal;

(d) Non-Profit Entity has made good faith efforts to take the action described under Section 3.4.2(d) and Non-Profit Entity has diligently and timely conducted negotiations with existing Lenders and/or the Project Debt Competition but was unable to obtain sufficient financing to satisfy its obligations under this Agreement on terms and with conditions reasonably acceptable to the Parties; or

(e) Non-Profit Entity has negotiated in good faith with City to mutually agree on mitigation actions, but the Parties fail to agree on any action under Section 3.4.2.

3.5.2 With respect to an Adverse Event set forth in clauses (i)-(j) of the definition of "Adverse Event", Non-Profit Entity's obligation to achieve Financial Close by the Financial Close Deadline shall be excused if, following the occurrence of such Adverse Event until the Delayed Financial Close Date, a new Adverse Event set forth in clauses (a)-(h) occurs (in which case, the provisions of Section 3.5.1 shall apply to such new Adverse Event (but not with respect to the original Adverse Event set forth in clauses (i)-(j) of the definition of "Adverse Event").

3.5.3 With respect to an Adverse Event set forth in clauses (a)-(h) of the definition of "Adverse Event", Non-Profit Entity has no obligation to reach Financial Close during the period between delivery of an Adverse Event Notice and agreement of the Parties on the mitigation actions to be undertaken by each Party to achieve Financial Close. With respect to an Adverse Event set forth in clauses (i)-(j), Non-Profit Entity has no obligation to reach Financial Close during the period between delivery of an Adverse Event Notice and up to 120 days after such delivery, but otherwise shall remain obligated to reach Financial Close unless excused pursuant to Section 3.5.2.

3.6 No-Fault Termination

3.6.1 City may, by delivering to Non-Profit Entity a Notice specifying City's election to terminate and its effective date, terminate this Agreement prior to Financial Close if City determines, in its sole discretion, that termination is in City's best interest.

3.6.2 Either Party may terminate this Agreement, without fault or penalty, upon 15 days prior Notice to the other Party, if Financial Close is not achieved by the Financial Close Deadline or Delayed Financial Close Date, as applicable, and such failure is excused pursuant to Section 3.5 (Permitted Excuses from Achieving Financial Close).

3.6.3 With respect to a termination under Section 3.6.1 or Section 3.6.2:

(a) City shall return the Financial Close Security within five Business Days after termination; and

(b) Non-Profit Entity shall be entitled to Termination Compensation in an amount not to exceed $15,556,566 based on commercially reasonable evidence of Principal Project Company's costs incurred during (i) the PDA Term, and (ii) from the period commencing on the Effective Date and ending on the Early Termination Date, as indicated in City's Notice delivered pursuant to Section 3.6.1. Such payment shall be the exclusive compensation payable by City to Non-Profit Entity under this Agreement and the Principal Project Company for a termination under Section 3.6.1 or Section 3.6.2.

3.6.4 Payment of Termination Compensation in accordance with Section 3.6.3(b) is conditioned upon City's receipt from Non-Profit Entity, within 30 days of termination of this Agreement under Section 3.6.1 or Section 3.6.2, of (i) a complete and compliant invoice requesting payment in the form set forth in Exhibit 17 (Section 3.6 Invoice); and (ii) all work

product set forth in Section 3.6.5. Such Termination Compensation shall be due and payable no later than 30 Business Days following City's receipt of such invoice.

3.6.5 Payment of Termination Compensation in accordance with Section 3.6.3(b) is in consideration for ownership and title to all work product (including, subject to the terms of Section 21.4 (Intellectual Property), any Developed IP) produced by Non-Profit Entity related to the Project along with all IP Materials generated as of the date of Notice provided pursuant to Section 3.6.1 or Section 3.6.2, including (a) all written and electronic correspondence, exhibits, photographs, reports, printed material, tapes, disks, designs, concepts, ideas, technology, techniques, methods, processes, drawings, plans, specifications and other graphic and visual aids generated or developed by or on behalf of Non-Profit Entity during the Project procurement process and during the PDA Term, including aesthetic design concepts, interim design submittals, and other items delivered or submitted in any medium, media or format by or on behalf of Non-Profit Entity to City during the Project procurement process, during the PDA Term, or in connection with the Technical Proposal, and (b) all design, planning, materials, equipment, tools, supplies and other Work developed in connection with the Contract Documents.

3.7 Non-Profit Entity's Failure to Achieve Financial Close

3.7.1 If Financial Close is not achieved by the Financial Close Deadline or Delayed Financial Close Date, as applicable, then, unless such failure is excused under Section 3.5 (Permitted Excuses from Achieving Financial Close), City shall have the right to:

(a) terminate this Agreement in its entirety by written Notice to Non-Profit Entity with immediate effect; and/or

(b) draw and retain the full amount of the Financial Close Security, as City's sole remedy against Non-Profit Entity under this Agreement for Non-Profit Entity's failure to achieve Financial Close; provided, however, that, nothing herein shall prejudice any rights or remedies City may have for actions or breaches, other than failure to achieve Financial Close, caused by Non-Profit Entity under this Agreement or the Early Works Agreement, if any.

3.7.1.2 Exercising either remedy under this Section 3.7.1 will not prejudice any rights or remedies the City may have for other actions or breaches Non-Profit Entity causes under this Agreement or, if applicable, any Early Works Agreement, subject to the limitations of liability on Non-Profit Parent as contained in this Agreement.

3.7.2 City's right to draw upon the Financial Close Security is not intended to constitute a penalty, but is intended to be, and shall constitute, liquidated damages to compensate City for the cost of foregoing alternative opportunities and for other costs incurred by City in reliance upon Non-Profit Entity's agreement to enter into the transactions contemplated hereby.

3.8 Interaction with Principal Project Company and Project Implementation Agreement.

3.8.1 City acknowledges and agrees that the Non-Profit Entity will carry out certain aspects of the Work by contracting various obligations to the Principal Project Company pursuant to the Project Implementation Agreement and that the Principal Project Company will, in turn, contract

part of its obligations under the Project Implementation Agreement to the D&C Contractor and other Contractors.

3.8.2 The Parties hereby acknowledge and agree that (a) the Principal Project Company has been afforded certain rights under the Project Implementation Agreement to coordinate directly with City in the performance of the Work on behalf of the Non-Profit Entity and City will accept the performance by the Principal Project Company as if performed by the Non-Profit Entity hereunder; and (b) any act by or behalf of the Principal Project Company under the Project Implementation Agreement may, to the extent performed as required under this Agreement, satisfy any obligation or requirement of the Non-Profit Entity. City shall use reasonable efforts deliver to the Principal Project Company a copy of any notice, demand, consent, response or other material communication delivered to the Non-Profit Entity pursuant to this Agreement but the foregoing shall not be a condition to the exercise by City of any rights and remedies under this Agreement against Non-Profit Entity, it being the express understanding that it is Non-Profit Entity's obligation to deliver notices and communications to Principal Project Company. Non-Profit Entity shall concurrently deliver to City any notice, demand, consent, response or other material communication delivered to Principal Project Company under the Project Implementation Agreement.

3.8.3 The Parties acknowledge that the Non-Profit Entity will, on a back-to-back basis, share with the Principal Project Company, who will, in turn, share with the other Contractors, certain benefits to the Non-Profit Entity derived from the rights, entitlements, and relief afforded to the Non-Profit Entity under, and subject to the obligations and limitations under, this Agreement (collectively "**NPE Project Relief**"). City acknowledges and agrees that any circumstance or event impacting the Principal Project Company or any other Contractor, which, if such same event or circumstance impacted the Non-Profit Entity, would serve as the basis for NPE Project Relief, will be deemed a circumstance affecting the Non-Profit Entity for purposes of seeking NPE Project Relief, and, in each case, the Non-Profit Entity or the Principal Project Company, on the Non-Profit Entity's behalf, may claim relief, damages, costs or expenses under and subject to the terms of this Agreement. The Principal Project Company may only bring claims directly on behalf of the Non-Profit Entity under this Agreement in accordance with the terms and limitations of this Agreement and the Project Implementation Agreement.

3.8.4 City and Principal Project Company, for itself and on behalf of the Non-Profit Entity, shall directly interface with each other as needed to perform the D&C Work.

3.8.5 Notwithstanding anything to the contrary in this Agreement, to the extent the Non-Profit Entity delegates any of its obligations under this Agreement to Principal Project Company (pursuant to the Project Implementation Agreement or otherwise), the Non-Profit Entity shall cause Principal Project Company to comply with such delegated obligations under this Agreement.

3.8.6 In the event Principal Project Company exercises its rights under Section 1.12 of the Project Implementation Agreement as a result of a Non-Profit Entity Default or any other breach by the Non-Profit Entity of its obligations under this Agreement, in addition and without duplication to any and all rights and remedies of City under this Agreement, City may seek to recover from the Non-Profit Entity its Losses arising from such exercise of Principal Project Company's rights under Section 1.12 of the Project Implementation Agreement.

3.8.7 Notwithstanding anything to the contrary contained herein or in the Project Implementation Agreement, the liability of Non-Profit Entity under this Agreement and the Project Implementation Agreement, and each obligation of Non-Profit Entity hereunder and thereunder (including its indemnity obligations) shall be "limited recourse obligations" and, accordingly, the sole source of satisfaction of or recourse against such obligations shall be limited to Non-Profit Entity's interest in (a) this Agreement and the Project Implementation Agreement, (b) the Project, (c) the Milestone Payments and Substantial Completion Development Fee, (d) Non-Profit Entity's other assets, and (e) any guaranties. None of the assets or properties of Non-Profit Parent shall be subject to recourse, judgment, foreclosure, enforcement, security or seizure by City or by Principal Project Company, Non-Profit Parent shall have no obligation to loan, advance or contribute funds to Non-Profit Entity to enable it to pay or perform its obligations under this Agreement or the Project Implementation Agreement, and neither City or Principal Project Company may seek to force Non-Profit Parent to do so. Neither City nor Principal Project Company shall seek to obtain payment or performance against Non-Profit Parent or against the members, officers, directors, or trustees of Non-Profit Entity or Non-Profit Parent, recourse being limited solely to the assets described above.

ARTICLE 4. NON-PROFIT ENTITY FINANCING; LENDERS' RIGHTS; REFINANCING; PRIVATE CAPITAL INVESTMENTS; FINANCIAL MODEL

4.1 Non-Profit Entity Right and Responsibility to Finance

4.1.1 Non-Profit Entity is solely responsible for obtaining and repaying, at its own cost and risk and without recourse to the City or SFMTA, all financing necessary for the Work that is the Non-Profit Entity's responsibility under the Contract Documents. Non-Profit Entity shall take all appropriate action to obtain the Project Debt as described in the Financial Proposal on or before the Financial Close Deadline. If the Finance Plan includes any other tax-exempt financing, Non-Profit Entity bears all risks relating to securing a Conduit Issuer, receiving the necessary approvals and compliance with applicable federal requirements.

4.1.2 Non-Profit Entity may grant security interests in or assign the entire NPE's Interest (but not a portion of such interest) to Lenders for purposes of securing the Project Debt, subject to the terms of the Contract Documents. Non-Profit Entity shall not pledge or encumber the NPE's Interest, or any portion of such interest, to secure any indebtedness of any Person other than (a) Non-Profit Entity, (b) any special purpose entity that owns Non-Profit Entity but no other assets and has purposes and powers limited to the Project and Work, (c) a special purpose entity subsidiary owned by either Non-Profit Entity or an entity described in clause (b) of this Section 4.1.2, or (d) a Conduit Issuer.

4.1.3 Except as otherwise provided in Section 3.2.3 (Base Interest Rate Fluctuation), Non-Profit Entity bears all risk of any changes in the interest rate, payment provisions, collateral requirements, financing charges, make whole amounts, hedge agreements, prepayment premiums, breakage charges or the other terms of Project Debt.

4.1.4 Notwithstanding the foreclosure or other enforcement of any security interest created by a Security Document, Non-Profit Entity shall remain liable to City for the payment of all sums owing to City under this Agreement and the performance and observance of all of Non-Profit Entity's covenants and obligations under the Contract Documents.

4.2 No City or City Responsibility for Project Debt

4.2.1 All Project Debt or other obligations issued or incurred by a NPE-Related Entity in connection with this Agreement or the Project shall be issued or incurred only in the name of a NPE-Related Entity or a Conduit Issuer or other entity acting on behalf of a NPE-Related Entity as the ultimate obligor. Except as otherwise expressly provided in this Agreement, the City shall have no obligation to pay debt service on any Project Debt or any other debt issued or incurred by a NPE-Related Entity. The City shall have no obligation to join in, execute or guarantee any note or other evidence of indebtedness of a NPE-Related Entity, any other Financing Agreement or any Security Document (other than the Direct Agreement). Project Debt or other obligations issued or incurred by a NPE-Related Entity in connection with this Agreement or the Project do not constitute indebtedness, or a pledge of the faith and credit, of City or any department of the City. The Lenders, individually or collectively, have no right to have taxes levied or compel appropriations by City, including the Board of Supervisors, for the payment of any or all of the amount of such principal of, premium, if any, and interest on Project Debt or other obligations issued or incurred by a NPE-Related Entity in connection with this Agreement or the Project.

4.2.2 Except for a violation by City of its express obligations to Lenders in any Direct Agreement, no Lender is entitled to pursue any remedy against City, including any right to seek any damages or other amounts from the City, whether for Project Debt or any other amount.

4.2.3 Section 4.2.2 does not affect City's liability to Non-Profit Entity under Article 17 (Termination) for Termination Compensation that is measured in whole or in part by reference to outstanding Project Debt.

4.2.4 City shall have no obligation to any Lender under the Contract Documents, except to the extent of any express obligations of City to Lenders under any Direct Agreement or in any other instrument or agreement signed by City in favor of such Lender or Collateral Agent. This Section 4.2.4 does not preclude Lender enforcement of this Agreement against City where the Lender has succeeded to the NPE's Interest, whether by way of assignment or subrogation.

4.3 Lenders' Rights

4.3.1 This Agreement is exclusively for the benefit of City and Non-Profit Entity, and shall not provide any Lender with any remedy, claim, liability, reimbursement, cause of action or other right, except for the rights of any Lender as provided in any Direct Agreement.

4.3.2 The rights of City under Article 16 (Default; Remedies) and Article 17 (Termination) are subject to the terms of any Direct Agreement.

4.4 Refinancing

4.4.1 Right of Refinancing

4.4.1.1 Other than Exempt Refinancings and Rescue Refinancings. City shall have the unilateral right to cause the Non-Profit Entity to commence a Refinancing to the extent permitted under the Financing Documents, all cost and expenses of which shall be borne by City. Both Parties shall cooperate in connection with the closing of any Refinancing, including providing customary legal opinions and instruments and other documents, all at City's cost and expense. If the Refinancing is with a new Lender, the new Lender may be added to an existing Direct Agreement or City shall enter into a new Direct Agreement with the new Lender, if such Lender so elects. City acknowledges and agrees that in connection with any Refinancing initiated at the request or direction of the City, Non-Profit Entity shall be entitled to engage Principal Project Company or an Affiliate to perform financial modelling and structuring services and, other than in connection with a Rescue Refinancing, shall be entitled to pay such Person a reasonable fee for such services consistent with market rates for such a fee. Any such fee shall be a cost of the Refinancing.

4.4.2 Notice of Refinancing

4.4.2.1 At least 60 days before the proposed date for closing any proposed Refinancing, whether initiated by the Non-Profit Entity or City (except an Exempt Refinancing under clause (b), (c) or (d) of the definition of Exempt Refinancing), Non-Profit Entity shall submit to City a summary of the proposed Refinancing, together with a schedule setting forth the various activities, each with schedule durations, to be accomplished from commencement through the close of the proposed Refinancing.

4.4.2.2 Non-Profit Entity shall provide at least 30 days' advance Notice to City of any intended Exempt Refinancing under clause (b), (c) or (d) of the definition thereof, including facts and documents of such Exempt Refinancing which shall include, at a minimum, the documents described in Section 4.4.2.4 and the reason Non-Profit Entity considers it to be an Exempt Refinancing.

4.4.2.3 Within 20 days after receipt of the materials required under Section 4.4.2.2, City will review and provide Notice to Non-Profit Entity as to whether, in its opinion, the proposed Refinancing is an Exempt Refinancing.

4.4.2.4 At least 45 days before the proposed date for closing any Refinancing (except an Exempt Refinancing under clause (b), (c) or (d) of the definition of Exempt Refinancing), Non-Profit Entity shall:

(a) provide draft proposed Financing Agreements and Security Documents (or term sheets therefor, if drafts are not then available), available Refinancing Data, and any other submittals reasonably required by City to calculate City's Refinancing Gain; and

(b) if applicable, provide Notice to City setting out the facts to support the basis for characterization of the transaction as an Exempt Refinancing or Rescue Refinancing.

4.4.2.5 Within 15 days after receipt of the materials required under Section 4.4.2.4, City will provide Notice to Non-Profit Entity of City's determinations regarding the following:

(a) whether the proposed Refinancing is an Exempt Refinancing or Rescue Refinancing;

(b) if the proposed Refinancing is neither an Exempt Refinancing or Rescue Refinancing, whether to approve or disapprove the proposed Refinancing; and

(c) if City will approve the proposed Refinancing, whether the Refinancing Gain requirements apply.

4.4.2.6 City's failure to deliver to Non-Profit Entity Notice of the determinations and selection within the time period set forth in Section 4.4.2.5 shall not prejudice City's right to disapprove the proposed Refinancing, to receive any portion of Refinancing Gain, or its selection of the means for payment of such portion.

4.4.2.7 At least 10 days before the proposed date for closing the Refinancing, Non-Profit Entity shall deliver to City substantially final drafts of the proposed Financing Agreements and Security Documents, together with updated versions of the Refinancing Data.

4.4.2.8 Within five Business Days after close of the Refinancing, Non-Profit Entity shall deliver to City copies of all signed Financing Agreements and Security Documents in connection with the Refinancing, and the final Refinancing Data.

4.4.2.9 Within 10 Business Days after close of the Refinancing, City and Non-Profit Entity shall meet and confer to agree upon the final calculation of the Refinancing Gain in accordance with Section 4.5 (Refinancing Gain). Once the final calculation is made, Non-Profit Entity shall

pay City 100% of the Refinancing Gain in accordance with City's selected method of payment. If there is any dispute regarding the amount owing, Non-Profit Entity shall pay the undisputed amount to City and the amount in dispute shall be subject to resolution under the Contract Dispute Procedures.

4.4.3 Refinancing Limitations, Requirements and Conditions

4.4.3.1 If City renders any assistance or performs any requested activity in connection with a Refinancing apart from delivering a consent and estoppel certificate under any Direct Agreement, then concurrently with close of the Refinancing, and as a condition precedent to Non-Profit Entity's right to close the Refinancing, Non-Profit Entity shall reimburse City for Recoverable Costs incurred in connection with the Refinancing. City will deliver to Non-Profit Entity a written invoice and demand before the scheduled date of closing. If as a result of any NPE Fault, the Refinancing does not close, Non-Profit Entity shall reimburse City for Recoverable Costs incurred in connection with the proposed Refinancing within 10 days after City delivers to Non-Profit Entity a written invoice and demand for such costs.

4.4.3.2 Where the Non-Profit Entity, acting with the consent of the Principal Project Company, elects to undertake a Refinancing, or the refinancing is an Exempt Refinancing, the Non-Profit Entity shall bear all risks for any Refinancing that negatively affects its Key Ratios or financial performance.

4.4.3.3 In no event shall the Availability Payments be increased as a result of, or arising out of, a Refinancing pursuant to clause (f) of the definition of "Exempt Refinancing" except to the extent that such Refinancing was required solely due to or in connection with any City Fault.

4.5 Refinancing Gain

4.5.1 City shall be entitled to receive 100% of any Refinancing Gain attributable to any Refinancing.

4.5.2 Commencing at least 40 days before the proposed date for closing any Refinancing (except an Exempt Refinancing under clause (b), (c) or (d) of the definition of Exempt Refinancing), the Parties will negotiate in good faith to determine the method by which City will receive the Refinancing Gain, which includes one or a combination of the following methods:

(a) a single payment on or about the date of the Refinancing;

(b) a credit or payment by Non-Profit Entity to City that effectively reduces the Availability Payments over the remainder of the Term; or

(c) a combination of clauses (a)-(b).

4.6 Intentionally Omitted

4.7 Financial Model and Financial Model Updates

4.7.1 Model Update Event

4.7.1.1 Model Update Event means any of the following events:

(a) the implementation at Financial Close of the Base Interest Rate and Credit Spread fluctuation process pursuant to Section 3.2.3 (Base Interest Rate Fluctuation);

(b) the implementation of any mitigation actions set forth in Section 3.4.2;

(c) a Delay Event for which City owes Non-Profit Entity compensation pursuant to Sections 14.1.4 (Costs Payable for Compensable Delay Events), Section 14.1.6 (Costs Payable for Force Majeure Events During the D&C Period) or Section 14.1.7 (Costs Payable for Unavoidable Delay Events During the D&C Period), respectively, which City has elected to pay as an adjustment to the Availability Payments over the Term**;**

(d) an event for which City is entitled to compensation from Non-Profit Entity pursuant to Section 16.2 (City Remedies for NPE Default);

(e) a Refinancing resulting in a Refinancing Gain to which City is entitled to a 100% share pursuant to Section 4.5 (Refinancing Gain); and

(f) any amendments to the Contract Documents that the Parties agree has a material effect on the Financial Model, including any amendments agreed to by the Parties between the Finance Plan Due Date and Financial Close.

4.7.1.2 Whenever a Model Update Event occurs (except as otherwise provided in this Agreement or where the Parties mutually agree otherwise), the financial consequence shall be determined in accordance with this Section 4.7 (Financial Model and Financial Model Updates).

4.7.2 Updates to the Financial Model

4.7.2.1 In connection with any Model Update Event that entitles either Party to the payment of any amount, Non-Profit Entity may, in consultation with City, prepare an updated Financial Model in accordance with this Section 4.7.2 (Updates to the Financial Model) (each, a "**Financial Model Update**") to reflect the financial impacts of such Model Update Event and calculate the amount due to either Party as a result of the Model Update Event. Non-Profit Entity may address more than one Model Update Event within a single Financial Model Update, provided that City may request interim versions of a Financial Model Update that address the impact of only a single Model Update Event. No Financial Model Update shall have any effect on the rights and obligations of the Parties under this Agreement until both Parties have agreed in writing to accept it as an amendment to this Agreement pursuant to Section 4.7.3 (Replacement of Financial Model).

4.7.2.2 Non-Profit Entity shall propose the Financial Model Update by Notice to City giving the proposed revised Financial Model together with full and complete details and explanation of the assumptions and calculations used to reflect the financial impacts of the Model Update Event which may only include changes to Non-Profit Entity's cash revenues and expenses that arise directly from the Model Update Event and consequential changes to the Project Debt draw down schedule, funding and release of reserves, financing costs, debt service schedule and amounts or any other impacts or consequential changes mutually agreed by the Parties.

4.7.2.3 A Financial Model Update:

(a) may incorporate only the following revisions:

(i) changes to Non-Profit Entity's cash revenues and expenses that arise directly from the Model Update Event; and

(ii) consequential changes to the Project Debt draw down schedule, funding and release of reserves, financing costs and debt service schedule and amounts; and

(b) may not:

(i) incorporate other information or assumptions based on Non-Profit Entity's actual Project Financial Performance; or

(ii) generally update projections through the end of the Term based on current market conditions.

4.7.2.4 Non-Profit Entity may amend the logic or formulae incorporated in a Financial Model Update to the extent necessary to permit adjustments to the Financial Model in accordance with this Section 4.7 (Financial Model and Financial Model Updates). However, if any amendment is to be made to the logic or formulae in a Financial Model Update, the Key Ratios in the Financial Model Update must be maintained at levels that are neither lower nor higher than the Key Ratios existing in the Financial Model then in effect.

4.7.2.5 Non-Profit Entity shall provide City with access, on an Open Book Basis, to the set of updated and revised assumptions and other data that comprise or are included in any Financial Model Update. Non-Profit Entity shall also provide a reconciliation and explanation of all the adjustments applied in the Financial Model Update. City may challenge the validity, accuracy or reasonableness of any Financial Model Update or any portion thereof and may require Non-Profit Entity to correct any detected errors in the Financial Model Update or Financial Model, as applicable.

4.7.3 Replacement of Financial Model

4.7.3.1 Following mutual agreement by Non-Profit Entity and City on interim versions of a Financial Model Update, Non-Profit Entity shall deliver to City, in form and substance reasonably acceptable to City:

(a) the final version of the Financial Model Update and the related amended Financial Modeling Data, in the same form as the versions delivered pursuant to Section 3.3 (Post-Financial Close Requirements and Deliverables) or in such other form as may be agreed upon by the Parties;

(b) an updated model audit report related to such Financial Model Update in accordance with Section 4.7.4 (Financial Model Audits); and

(c) a form of written amendment that (i) effects the replacement of the then current Financial Model then in effect with the proposed Financial Model Update, and (ii) addresses all other amendments to this Agreement that may be required as a result of the Model Update Event and the amended Financial

Model, including any required amendments to the definitions of APC, API, and Key Ratios.

4.7.3.2 Upon approval by City of the materials provided under Section 4.7.4.1 and execution of the written amendment by the Parties, the Financial Model Update shall become the Financial Model for the purposes of this Agreement until further amended, as applicable. Each Financial Model in effect under this Agreement shall be assigned an exclusive identification number, using chronological sequencing, and shall be clearly marked with Non-Profit Entity's name, date of submittal, contract number and the words, "Financial Model for Escrow".

4.7.3.3 City reserves the right to approve any material changes in the debt structure (e.g., fixed or variable rate, bank financing or bond financing, call provisions) before Financial Close that constitute a deviation from the assumptions in Exhibit 3A (Financial Proposal). Material changes, as used in this Section 4.7.3.3, include (i) a change that differs materially from any commitments or provisions set forth in the Finance Plan; (ii) a change which would alter the risk allocations in this Agreement, the Project Implementation Agreement or any other Key Contract; (iii) a change which could increase the liability of City for termination compensation in the event of a termination; (iv) a change that would result in an Affordability Event; (v) a change that would cause a Delayed Financial Close Date; (vi) a change in any of the Security Documents; and/or (vii) a change under any of the conditions precedent to Financial Close under the Financing Documents.

4.7.3.4 In the event of a Contract Dispute about the Financial Model, the Financial Model or the immediately preceding Financial Model Update (as applicable) that is not being disputed (or, if there has been no undisputed Financial Model Update, the Financial Model) will remain in effect until such Contract Dispute is resolved or a new Financial Model Update is issued and not disputed. If a proposed Financial Model or Financial Model Update (as applicable) has not been disputed, or if any such Contract Dispute has been so resolved, the proposed Financial Model or Financial Model Update (as applicable) will serve as the Financial Model or the current Financial Model Update (as applicable).

4.7.4 Financial Model Audits

4.7.4.1 Any model audit report delivered to City pursuant to Sections 3.3 (Post-Financial Close Requirements and Deliverables) and 4.7 (Financial Model and Financial Model Updates) shall be prepared by an independent audit firm with a nationally recognized reputation. The cost of a model audit report shall be paid solely by City (and may be included as a cost to be financed as a closing expense) if it is prepared in connection with a Financial Model Update related to a Model Update Event described in Section 4.7.1.1(c), Section 4.7.1.1(e), or 4.7.1.1(f) when an amendment is proposed only by City. The cost of any other model audit report required hereunder shall be paid solely by Non-Profit Entity.

4.7.4.2 Non-Profit Entity shall bear the entire risk of any errors or omissions contained in the Financial Model and shall not be entitled to any compensation or other relief from City in relation to any loss or damage that it suffers as a result of such error or omission.

4.8 Escrow of Financial Model and Cost and Pricing Data

4.8.1 City and Non-Profit Entity shall, within 10 days after the Effective Date, jointly deposit the Base Case Financial Model in a locked cabinet at SFMTA or another location approved by City, with both Parties having a key to the cabinet. Replacement Financial Models shall be

deposited within 10 days after the Parties have executed and delivered the amendment in accordance with Section 4.7.3 (Replacement of Financial Model).

4.8.2 The Parties acknowledge that the Cost and Pricing Data has been placed into escrow as provided in Section 4.8.1. Concurrently with approval of each Change Order or other amendment to the Contract Documents, Non-Profit Entity shall deposit in the Cost and Pricing Data escrow one copy of all documentary information used by Non-Profit Entity in connection with pricing for the Change Order or other amendment, including quotations from Contractors.

4.8.3 Non-Profit Entity represents and warrants that:

(a) the material initially delivered into escrow constitutes the Base Case Financial Model and Cost and Pricing Data provided in connection with the Financial Proposal and an authorized officer of Non-Profit Entity or Principal Project Company has personally examined the contents of the electronic file and/or electronic storage media, as applicable, and they are complete; and

(b) the Cost and Pricing Data constitutes all of the information used by Non-Profit Entity in determining the cost of the D&C Work in preparation of the Implementation Proposal and, unless City agrees or directs otherwise, Non-Profit Entity shall not use any other Implementation Proposal preparation information in the negotiation of Change Orders or in connection with the potential resolution or settlement of Claims or Contract Disputes.

4.8.4 Whenever Non-Profit Entity makes an additional deposit of any replacement Financial Models or Cost and Pricing Data into escrow, Non-Profit Entity shall certify, or cause Principal Project Company to certify, to City in writing at the time of deposit that: (a) the material deposited into escrow constitutes the true replacement Financial Models or Cost and Pricing Data, as applicable; (b) an authorized officer of Non-Profit Entity or Principal Project Company has personally examined the contents of the deposit; and (c) the deposit is complete.

4.8.5 City may conduct a review of the Cost and Pricing Data in accordance with the procedure set forth in Section 4.8.6 to determine whether it is complete. In the event City determines that any Cost and Pricing Data is missing, City may request that Non-Profit Entity submit the missing data and Non-Profit Entity shall provide such Cost and Pricing Data within three Business Days of the request, and at that time it will be date stamped, labeled to identify it as supplementary information, and added to the escrowed Cost and Pricing Data. Non-Profit Entity shall have no right to add documents to the Cost and Pricing Data except as otherwise provided in this Section 4.8 (Escrow of Financial Model and Cost and Pricing Data).

4.8.6 Each of City and Non-Profit Entity shall have the right to examine, through one or more designated representatives, any and all components of the Financial Model and Cost and Pricing Data during the SFMTA's normal business hours. The Party undertaking an examination need not have or state a specific reason to examine such material. Without limiting the foregoing, the Parties recognize that examination of the escrowed material may assist in the negotiation of Change Orders, or may assist in the potential resolution or settlement of Claims or Contract Disputes.

4.8.7 City will provide Notice to Non-Profit Entity in writing at least two Business Days in advance of City's examination of escrowed material, and shall allow Non-Profit Entity to be present at the examination. City may make or retain copies of escrowed material, subject to

terms reasonably necessary to protect the confidentiality and proprietary nature of the contents, as may be agreed upon by the Parties and subject to applicable Laws.

4.8.8 Subject to applicable Laws, the escrowed material is, and shall remain, the property of Non-Profit Entity or its Contractors.

4.8.9 Non-Profit Entity agrees that the Cost and Pricing Data is not part of the Contract Documents and that nothing in the Cost and Pricing Data shall change or modify the Contract Documents.

4.8.10 Either Party may introduce escrowed material into evidence in accordance with the Contract Dispute Procedures. The Parties shall promptly abide by any request from the court or other dispute resolver to receive, review and utilize the Financial Model and Cost and Pricing Data to assist the dispute resolver in its deliberations.

4.8.11 The escrow shall remain in effect throughout the Term and thereafter until final resolution of all Contract Disputes, subject to any mutual agreement of the Parties to retrieve and/or discard materials therein from time to time.

4.8.12 Non-Profit Entity shall not be entitled to any additional payment for compilation of materials to be deposited into escrow or any other Non-Profit Entity expenses for complying with this Section 4.8 (Escrow of Financial Model and Cost and Pricing Data).

ARTICLE 5. SUBMITTALS; MANAGEMENT SYSTEMS AND OVERSIGHT

5.1 Submittal Review Terms and Procedures

5.1.1 Terms and Procedures

Non-Profit Entity shall comply with the terms and procedures for Submittals review set forth in Exhibit 11 (Submittals Review Process). Except as set forth in this Agreement, including Exhibit 11 (Submittals Review Process), the standard for review and approval of design and construction Submittals that comply with the Technical Requirements shall be reasonable discretion; provided, however, that decisions regarding waivers, releases, consents, acceptance of Nonconforming Work, Deviations, NPE Change Requests and other matters that are not consistent with or comply with the Contract Documents shall be within City's sole discretion.

5.1.2 Conflicting Provisions

Exhibit 11 (Submittals Review Process) sets forth uniform terms and procedures for Submittals. In the event of any conflict between the provisions of Exhibit 11 (Submittals Review Process) and any other provisions of the Contract Documents or with the Project Management Plan concerning procedures with respect to submission, review, comment, approval, consent, determination, decision or other actions with respect to Submittals, Exhibit 11 (Submittals Review Process) shall exclusively govern and control the procedures, except to the extent that the conflicting provision expressly states that it supersedes Exhibit 11 (Submittals Review Process).

5.1.3 Limitations on Non-Profit Entity's Right to Rely

5.1.3.1 No action or failure to take action by or on behalf of City relating to Oversight (including review and approval of the Project Management Plan) or other act or omission of City shall:

(a) constitute an approval or acceptance by City of Non-Profit Entity's performance of its obligations in accordance with the Contract Documents;

(b) alter, waive, diminish, release or otherwise prejudice any rights, remedies or powers that City has under the Contract Documents or otherwise;

(c) limit Non-Profit Entity's obligation to perform the Work in accordance with the Contract Documents; or

(d) affect Non-Profit Entity's liabilities and obligations to fulfill the requirements of the Contract Documents (including its indemnity obligations).

5.1.3.2 Non-Profit Entity acknowledges and agrees that Oversight, including review, comment, exception, objection, rejection, approval, disapproval, acceptance, concurrence, certification or failure to conduct any such activity by City:

(a) is solely for the benefit and protection of City;

(b) does not relieve Non-Profit Entity of its responsibility for the selection and the competent performance of all NPE-Related Entities;

(c) does not relieve Non-Profit Entity from compliance with the requirements of the Contract Documents or create or impose upon City any liability, duty or obligation toward Non-Profit Entity to cause it to fulfill the requirements of the Contract Documents;

(d) shall not be deemed or construed as any kind of warranty, express or implied, by City;

(e) may not be relied upon by Non-Profit Entity or used as evidence in determining whether Non-Profit Entity has fulfilled the requirements of the Contract Documents;

(f) shall not relieve Non-Profit Entity from liability for, and responsibility to replace, Nonconforming Work (including Work based on Design Documents to the extent that they include a change, deviation, modification, alteration or exception from the Technical Requirements not approved as a Deviation) and to cure NPE Defaults;

(g) shall not be deemed or construed as any assumption of risk by City as to design, construction, equipping, supply, performance or quality of the Project or performance of the Work; and

(h) may not be asserted by Non-Profit Entity against City as a legal or equitable defense to, or as a waiver of or relief from, Non-Profit Entity's obligation to fulfill the requirements of the Contract Documents.

5.1.3.3 Notwithstanding the provisions of Sections 5.1.3.1 and 5.1.3.2, Non-Profit Entity may rely on Notices that City gives under this Agreement for purposes of confirming City's approval or consent to an event or matter, but without prejudice to any of City's other rights and remedies under this Agreement, including regarding compliance by Non-Profit Entity with the requirements of the Contract Documents.

5.1.3.4 Notwithstanding the provisions of Sections 5.1.3.1 and 5.1.3.2, Non-Profit Entity shall be entitled to rely on City's written approval of specific Deviations.

5.1.3.5 City's approval of Release for Construction Documents shall constitute approval of the design by City for purposes of Government Code section 830.6, but shall not be deemed to relieve Non-Profit Entity of liability for the design.

5.2 Project Management Plan

5.2.1 Non-Profit Entity shall comply with the Project Management Plan and its component parts, plans and other provisions and Good Industry Practice, including those requirements applicable to Quality Assurance and Quality Control.

5.2.2 Non-Profit Entity shall submit to City, in accordance with the procedures and timeline described in the Technical Requirements, any proposed changes or additions to or revisions of the Project Management Plan and its component parts.

5.2.3 Non-Profit Entity shall not commence any aspect of Construction Work before approval of the D&C Management Plan applicable to such Construction Work.

5.2.4 If any part, plan or other documentation of the Project Management Plan refers to, relies on or incorporates any manual, plan, procedure or like document, then all such referenced or incorporated materials shall be submitted to City for review, marked to identify relevant provisions.

5.2.5 Non-Profit Entity shall monitor the Work and prescribe times for internal audits of the Project Management Plan, and shall carry out such internal audits at the times prescribed and shall promptly remedy all findings to City's satisfaction.

5.2.6 Non-Profit Entity shall comply with and cause all Contractors to comply with applicable requirements of the Project Management Plan.

5.2.7 Non-Profit Entity shall update the Project Management Plan in accordance with the Technical Requirements.

5.3 Quality Assurance, Quality Control, Generally

Non-Profit Entity is primarily responsible for all Quality Assurance and Quality Control activities (including self-monitoring activities) necessary to manage the Project. Non-Profit Entity shall undertake the primary aspects of Quality Assurance and Quality Control for the Project and the Work in accordance with the Project Management Plan, the Technical Requirements (including Section 1.4 of Division 1 of the Technical Requirements), other applicable provisions of the Contract Documents, Good Industry Practice and applicable Law. The foregoing shall not limit City's Oversight rights and quality assurance/quality control verification, all as set forth in this Agreement.

5.4 Oversight, Inspection and Testing

5.4.1 City shall have the right at all times to conduct Oversight as provided in this Section 5.4 (Oversight, Inspection, and Testing) and Division 6 of the Technical Requirements. Such Oversight may include assessments regarding compliance with the Contract Documents, Project Management Plan, and requirements of applicable Governmental Entities and applicable Law. City may designate any Person or Persons to carry out any Oversight on City's behalf.

5.4.2 City's Oversight rights include, at City's sole option, the following:

(a) monitoring and auditing Non-Profit Entity and its Books and Records to determine compliance with requirements of the Contract Documents and the Project Management Plan, including (i) audit review of compliance with quality procedures and processes under NPE's Design Quality Plan and NPE's Construction Quality Plan, and (ii) audit review of Design Documents,

Construction Documents, field work plans, land surveys, mapping, other data collection tasks, other Submittals and other Books and Records;

(b) conducting audits of all design and pre-design activities for the Project as needed to ascertain and evaluate Non-Profit Entity's design quality and safety control processes, including (i) review of engineering calculations, engineering reports, and findings, (ii) review of the work of Non-Profit Entity's environmental compliance personnel with the Environmental Compliance Plan, and (iii) review of certifications that Non-Profit Entity's Quality Control checks of final Construction Documents have been performed and documented, and that the Construction Documents conform to the requirements of the Contract Documents;

(c) conducting audits of all construction-related activities for the Project as needed to audit Non-Profit Entity's construction quality and safety control processes, including (i) auditing the services of Non-Profit Entity's accredited laboratories and associated testing devices and equipment, (ii) reviewing Non-Profit Entity's construction quality procedures, including conducting field monitoring and inspections as needed for audit purposes of construction activities, materials, and system components, as indicated in the Contract Documents, (iii) auditing Non-Profit Entity's records of materials, materials tests, materials certifications, and performance tests for Project systems, (iv) reviewing and investigating Project progress, Project quality, Deviations, Defects, and repair and replacement of Nonconforming Work, and (v) conducting field monitoring and inspections;

(d) conducting inspection and testing of materials or software, including witnessing factory tests, off-site lab tests, and first article inspection of manufactured items to verify Non-Profit Entity's compliance with testing frequencies and requirements, including (i) performance and acceptance testing, in the Contract Documents, and the Project Management Plan, (ii) the accuracy of the tests, inspections and audits performed in accordance with NPE's Design Quality Plan and NPE's Construction Quality Plan, and (iii) compliance of materials incorporated into the Project with the applicable requirements, conditions and standards of the Contract Documents, Regulatory Approvals, the Project Management Plan and applicable Law;

(e) accompanying Non-Profit Entity on physical inspections associated with Non-Profit Entity's Performance Monitoring Report, conducting its own performance inspections, and assessing and rating the condition of elements;

(f) attending and witnessing Non-Profit Entity's other on-site and off-site tests and inspections, including system start-up and acceptance tests and inspections, subject to the obligation to observe all applicable Safety Standards and requirements;

(g) reviewing Non-Profit Entity's certification of Record Documents and surveys;

(h) investigating, analyzing and reporting on Safety Compliance and performance of Safety Compliance Orders; and

(i) monitoring and auditing Non-Profit Entity's detection, reporting, response times and time to respond to and rectify breaches and failures for which D&C Noncompliance Points may be assessed in accordance with Article 15 (D&C Period Deductions and D&C Noncompliance Points) and Exhibit 4A (Milestone Payment Mechanism).

5.4.3 City also has the right, but not the obligation, to conduct "over-the-shoulder" reviews of Design Documents and other Submittals. All such "over-the-shoulder" reviews conducted are for City's sole benefit.

5.4.4 Nothing in the Contract Documents shall preclude, and Non-Profit Entity shall not interfere with, any review, inspection or oversight of Submittals or of Work that any Authority Having Jurisdiction may desire to conduct in accordance with its agreements with City or applicable Law.

5.5 Testing and Test Results

5.5.1 All tests shall be carried out in accordance with Division 6 of the Technical Requirements, this Section 5.5 (Testing and Test Results) and all other applicable provisions of and the Contract Documents.

5.5.2 Non-Profit Entity shall develop a test recording system that permits ready retrieval of all test readings and shall provide information relating to tests proposed, test methodology and Test Reports to City on request.

5.5.3 City may attend and witness any tests and verifications to be conducted with respect to the Project. Non-Profit Entity shall provide to City all test results and reports (which shall be provided in electronic format in accordance with the Technical Requirements) within 10 Business Days after Non-Profit Entity or its Contractor receives them. With respect to continuous testing operations (such as concrete quality, structural concrete strengths, aggregate quality, compaction tests and material quality), Non-Profit Entity shall provide to City at regular intervals (at least weekly unless otherwise agreed) test summary sheets and statistical analyses indicating strength and quality trends.

5.5.4 For the purposes of the City's rights under Section 5.5, Non-Profit Entity shall provide the City, as part of its Three-week Look-Ahead Report pursuant to Section 1.2.1.8 of Division 1 of the Technical Requirements with a three-week look-ahead schedule, of the date, time, subject matter and specific location of such tests. In the event Non-Profit Entity wishes to modify the testing schedule set forth in such Three-week Look-Ahead Report, Non-Profit Entity shall give City advance Notice of such change. In addition, in advance of such tests, Non-Profit Entity shall respond to written requests by City to confirm the date and specific location within one Business Day.

5.5.5 City's Authorized Representative and any other designee may attend any test and will give advance Notice (not less than one Business Day) of their intent to attend the test. Any materials or plant that fail(s) such tests shall be rejected.

5.5.6 Non-Profit Entity acknowledges that, where Non-Profit Entity's Work impacts a Utility or an element subject to the jurisdiction of an Authority Having Jurisdiction, then the affected Utility Owner or Authority Having Jurisdiction, as applicable, will have the same rights as City

under this Section 5.5 (Testing and Test Results), subject to the same obligations that apply to City under Section 6.7.3.

5.6 Meetings

5.6.1 Non-Profit Entity shall conduct coordination and progress meetings with City, in accordance with Section 1.1.3 of Division 1 of the Technical Requirements during the course of design and construction. At City's request, Non-Profit Entity shall require the Engineer of Record and Contractors responsible for or affected by such Work to attend the progress meetings. City and its designated representatives are authorized to attend all such meetings and are permitted to raise any questions, concerns or opinions without restriction.

5.6.2 The Parties shall hold any other meetings, at such times, frequency and locations, as applicable, as stated in the Technical Requirements.

5.6.3 During the progress of the Work, if Non-Profit Entity encounters any Hazardous Materials or other Project Site conditions that may entitle Non-Profit Entity to claim that a Delay Event has occurred, then Non-Profit Entity shall provide Notice to City of the specific condition promptly before it is disturbed, or as soon as practicable afterwards, and before the affected Work continues. City shall promptly investigate such conditions.

5.6.4 City and Non-Profit Entity, through their respective Authorized Representatives, shall meet from time to time at the other Party's request to discuss and resolve issues relating to the Work.

5.6.5 Non-Profit Entity shall schedule all meetings with City at a date, time and place reasonably convenient to both Parties.

5.7 Reporting

5.7.1 Relating to the Work

5.7.1.1 Non-Profit Entity shall submit all reports relating to the Work in the form, with the content and within the time required under the Contract Documents.

5.7.1.2 Non-Profit Entity shall make available to City information relating to the status of the Work, including non-proprietary information relating to the design, engineering and construction, estoppel certificates, and such other matters as City may reasonably request in accordance with the Technical Requirements.

5.7.2 Financial Reporting

5.7.2.1 On the first anniversary of the Effective Date and on every subsequent anniversary thereof during the Term, Non-Profit Entity shall deliver to City certified copies of (a) Non-Profit Entity's most recent annual audited financial statements and (b) any other reporting and notifications provided to Lenders regarding material events (including any draws on Non-Profit Entity's debt service reserve account) under the Financing Documents.

5.7.2.2 From the Effective Date until the Final Acceptance Date, Non-Profit Entity shall deliver to City, on a monthly basis, certified copies of (a) Non-Profit Entity's draw requests to

Lenders (including corresponding payment applications by Key Contractors to Non-Profit Entity), and (b) the LTA's reports, which shall clearly state the D&C Percentage as of the date of the report, and the invoices approved by the LTA in connection with the foregoing, in each case, within two Business Days following delivery or receipt, as applicable, by Non-Profit Entity of the relevant documentation.

ARTICLE 6. GENERAL NON-PROFIT ENTITY OBLIGATIONS

6.1 Planning and Engineering Activities

Non-Profit Entity, through appropriately qualified and licensed design professionals, as identified in the Project Management Plan, shall furnish or cause to be furnished all planning and engineering activities appropriate for design and development of the Project in accordance with the Contract Documents and Good Industry Practice.

6.2 Project Site Conditions

6.2.1 Non-Profit Entity acknowledges and agrees that:

(a) it has investigated and satisfied itself as to the conditions affecting the D&C Work as and to the extent set forth in this Agreement, including those bearing upon transportation, disposal, handling and storage of materials, availability of labor, supplies, materials, equipment, water, electric power, roads and uncertainties of weather or similar physical conditions at the Project Site, the conformation and conditions of the ground, and the character of equipment and facilities needed in connection with the D&C Work;

(b) subject to Non-Profit Entity's rights under Section 13 and Section 14, it has satisfied itself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from (i) the results of exploratory work (including investigations undertaken pursuant to the PDA); (ii) with respect to Hazardous Materials and geotechnical conditions, in addition to clause (i), information, documents and materials provided to Non-Profit Entity by City; and (iii) an inspection of the Project Site and the review of other information publicly available, undertaken in a manner consistent with Good Industry Practice; and

(c) any failure by Non-Profit Entity to acquaint itself with such information relating to the conditions affecting the D&C Work will not relieve Non-Profit Entity from responsibility for estimating properly the difficulty or cost of successfully performing the D&C Work and shall not be the basis of a Delay Event claim.

6.3 Regulatory Approvals

6.3.1 CEQA Approval and NEPA Approval

6.3.1.1 The Parties acknowledge that City has obtained the CEQA Approval and NEPA Approval and Non-Profit Entity acknowledges receipt of a copy of the CEQA Approval and NEPA Approval. City is responsible for maintaining the CEQA Approval and the NEPA Approval. City is responsible for costs of litigation relating to the CEQA Approval and the NEPA Approval, subject to the exceptions provided in Section 6.3.4.2(d).

6.3.1.2 Non-Profit Entity shall provide support to City and undertake additional efforts as specified in Section 6.3.6.1 with respect to any modifications, renewals and extensions of the

CEQA Approval and NEPA Approval, including those required as the result of Non-Profit Entity's design and Delay Events.

6.3.2 Regulatory Approvals other than the CEQA Approval and the NEPA Approval

6.3.2.1 Non-Profit Entity shall obtain and maintain all Regulatory Approvals required for the Project and the Work, other than the CEQA Approval and the NEPA Approval, and shall bear the risk of obtaining such approvals and any delay in obtaining such approvals, except as provided in the Contract, as well as the risk of conditions imposed on performance of the Work by such approvals. Non-Profit Entity shall conduct all necessary environmental studies and prepare all necessary environmental documents in compliance with applicable Environmental Laws as needed to obtain Regulatory Approvals other than the CEQA Approval and the NEPA Approval, and shall obtain all necessary modifications, renewals and extensions thereof.

6.3.2.2 Subject to Section 6.3.4.1, Non-Profit Entity shall pay all costs associated with obtaining Regulatory Approvals, other than the CEQA Approval and the NEPA Approval.

6.3.3 Copies to City

Within 10 days of submitting any application for a Regulatory Approval to a Governmental Entity (or any proposed modification, renewal, extension or waiver of a Regulatory Approval or provision thereof), Non-Profit Entity shall submit an electronic copy of same, together with any supporting studies, analyses and data, to City. Non-Profit Entity shall deliver to City true and complete copies of all new or amended Regulatory Approvals, other than the CEQA Approval and the NEPA Approval.

6.3.4 Certain Risks Relating to Regulatory Approvals

6.3.4.1 Except to the extent required as a direct result of (a) a City Change, (b) a City Fault, or (c) Major Approval Delay, Non-Profit Entity shall not be entitled to any Extra Work Costs, Financing Delay Costs, Delay Costs, time extensions or any other relief associated with securing Regulatory Approvals.

6.3.4.2 As between City and Non-Profit Entity, Non-Profit Entity shall bear all risk arising out of, relating to or resulting from:

(a) any differences between Non-Profit Entity's design for any portion of the Project and the design that served as the basis for the application for a Regulatory Approval, except to the extent required as a direct result of a City Change;

(b) any differences between the means and methods (including temporary works) Non-Profit Entity chooses for performance of the Work and those stated in, referred to or expressly contemplated in the CEQA Approval and/or the NEPA Approval;

(c) any change in the Project due to Non-Profit Entity's design, except to the extent that the change was directly attributable to a Delay Event; and

(d) cost of litigation associated with Regulatory Approvals, including the CEQA Approval and the NEPA Approval, to the extent that the litigation arises due to Non-Profit Entity's failure to comply with the requirements of the Regulatory Approval.

6.3.5 Changes to Regulatory Approvals

If Non-Profit Entity wishes to obtain, modify, renew or extend any Regulatory Approvals, Non-Profit Entity shall first comply with, and obtain any consent or waiver required in accordance with, then-existing agreements between City and other Governmental Entities.

6.3.6 City Assistance with Regulatory Approvals.

6.3.6.1 Non-Profit Entity may, by Notice to City, request City's reasonable assistance and cooperation in obtaining modifying, renewing or extending any Regulatory Approvals (including any modification, renewal or extension of an existing Regulatory Approval required as the result of Non-Profit Entity's design or construction methods). Upon receipt of such a Notice and agreement of the Parties regarding the scope of, and budget for, assistance to be provided as described in Section 6.3.6.2, City will reasonably assist and cooperate with Non-Profit Entity in seeking to obtain the Regulatory Approvals, including joining in conferences and meetings with the Governmental Entities with jurisdiction, and providing Non-Profit Entity data, information and documents available to City and relevant to the application for the Regulatory Approvals

6.3.6.2 City and Non-Profit Entity shall work jointly to establish a scope of work and budget for City's Recoverable Costs (which shall be limited to reasonable out-of-pocket costs) incurred in connection with the assistance and cooperation that City agrees to provide in connection with modifications to Regulatory Approvals under Section 6.3.6.1. Subject to an agreed upon scope of work and budget and to any rights of Non-Profit Entity in the case of a Delay Event, Non-Profit Entity shall fully reimburse City for such Recoverable Costs incurred in providing such assistance and cooperation, including those incurred to conduct further or supplemental environmental studies.

6.3.6.3 Assistance provided by City under Section 6.3.6.1 shall not include any obligation to:

(a) coordinate and work with elected and other public officials as necessary and appropriate;

(b) act as the lead agency and directly coordinate with such Governmental Entities;

(c) take a position which City believes to be inconsistent with the Contract Documents, the Project Management Plan, applicable Law, Regulatory Approval(s), the requirements of Good Industry Practice, or City policy;

(d) take a position that is not usual and customary for City to take in addressing similar circumstances affecting its own projects (except for usual and customary arrangements that are incompatible with the Project's public-private contracting methodology);

(e) take a position that increases the risk, obligations or liabilities of City; or

(f) refrain from concurring with a position taken by a Governmental Entity if City believes that position to be proper.

6.3.6.4 Notwithstanding any assistance provided by City in accordance with Section 6.3.6.1, Non-Profit Entity shall remain responsible for, and bear all risks and costs associated with, obtaining all Regulatory Approvals, except as otherwise expressly provided in the Contract Documents.

6.3.7 Regulatory Approvals in City's Name

6.3.7.1 Certain Regulatory Approvals are required to be applied for or issued in City's name and/or require City to directly coordinate with such Governmental Entities in connection with obtaining Regulatory Approvals. With respect to such approvals, City will assist and cooperate with Non-Profit Entity following receipt of a request under Section 6.3.6.1, and the Parties shall proceed in accordance with Section 6.3.6.2 Non-Profit Entity shall lead all actions and efforts to apply for and obtain the Regulatory Approval including: (a) conducting necessary field investigations, (b) preparing mitigation analyses and studies and plans, (c) preparing surveys and required reports, applications and other documents in form approved by City, and (d) joint coordination and joint discussions and attendance at meetings with the applicable Governmental Entity.

6.3.7.2 Non-Profit Entity shall be solely responsible for obtaining all Regulatory Approvals required in connection with, and for compliance with applicable Laws with respect to, Temporary Areas.

6.3.8 Major Approval Delay

6.3.8.1 Non-Profit Entity shall make diligent efforts to obtain the cooperation of DBI as necessary for the issuance of any Major Approval. Non-Profit Entity is responsible for verifying the progress of DBI's review and progress towards granting such Major Approval. Non-Profit Entity shall provide Notice to City within five days after the occurrence of any of the following: (a) Non-Profit Entity reasonably believes for any reason that DBI will not issue a Major Approval in a manner consistent with the timely completion of the Project, the Project Schedule or the Major Approval Deadline or in accordance with Law, the Regulatory Approvals or the Contract Documents, (b) Non-Profit Entity becomes aware that DBI is not cooperating in a timely manner to issue the Major Approval in accordance with the Contract Documents, or (c) any other dispute arises between Non-Profit Entity and DBI with respect to the Major Approval, despite Non-Profit Entity's diligent efforts to obtain DBI's cooperation or otherwise resolve such dispute. Such Notice may include a request that City assist in resolving the dispute or in otherwise obtaining DBI's timely cooperation. Non-Profit Entity shall provide City with such information as City reasonably requests regarding DBI's failure to cooperate and the effect of any resulting delay on the Project Schedule. After delivering Notice to City, Non-Profit Entity shall continue to use diligent efforts to pursue DBI's cooperation.

6.3.8.2 If Non-Profit Entity requests assistance of City pursuant to Section 6.3.8.1, the following provisions apply:

(a) Non-Profit Entity shall provide evidence satisfactory to City, in its good faith determination, that (i) if DBI's response time exceeds reasonable expectations and Non-Profit Entity consistently and proactively pursued actions to advance

progress, (ii) Non-Profit Entity has made, and continues to make, diligent efforts to obtain DBI's cooperation and commenced coordination at the earliest time, including, with respect to the DBI site permit, during the PDA Term (including submitting and actively pursuing applications for the Major Approval and promptly and actively responding to DBI, taking into account the Project Schedule and the Major Approval Deadline), (iii) Non-Profit Entity has submitted a fully compliant and complete request and application for the Major Approval to DBI, as reasonably determined by DBI in accordance with applicable Law and the policies and procedures of DBI, including any requirements of the CEQA MMRP related to issuance of the Major Approval; (iv) Non-Profit Entity has paid in full all fees and charges required for the review, consultation and issuance of the Major Approval by DBI in a timely manner; (v) Non-Profit Entity has consistently been responsive to DBI comments in a timely and proper manner; (vi) Non-Profit Entity has satisfied all other conditions to the commencement of review by DBI in accordance with applicable Law and the policies and procedures of DBI; and (vii) DBI is not cooperating (clauses (a)(i) through (vii) above are referred to herein as the "Major Approval Conditions to Assistance").

(b) Following receipt by City of satisfactory evidence, City shall take such reasonable steps as City may reasonably determine to obtain the cooperation of DBI with respect to the Major Approval or resolve the dispute; provided, however, City shall have no obligation to prosecute any legal proceedings, or to exercise any other legal remedy available to it under Law or existing contract, unless City elects to do so in its sole discretion. City may, at its sole discretion, participate in the resolution of any dispute between Non-Profit Entity and DBI, whether or not requested to do so by Non-Profit Entity.

(c) Without limiting City's obligations under clause (b) above or the terms of this Agreement related to a Major Approval Delay, if City holds contractual rights that might be used to enforce the Governmental Entity's obligation to cooperate, City shall have the right not to exercise those rights. The decision not to exercise those rights shall be in the sole discretion of City.

6.3.8.3 Any assistance provided by City shall not relieve Non-Profit Entity of its sole and primary responsibility for the satisfactory compliance with its obligations under the Contract Documents and its obligations with respect to obtaining any Major Approval.

6.3.8.4 Major Approval Delay shall only apply to an unreasonable and unjustified delay by DBI in connection with a Major Approval beyond the applicable Major Approval Deadline following receipt by City of proper Notice pursuant to Section 6.3.8.1, provided that (i) all of the "Major Approval Conditions to Assistance" described in Section 6.3.8.2 have been satisfied; (ii) Non-Profit Entity shall actively and diligently cooperate with DBI and pursue the issuance of the Major Approval at all times; and (iii) Non-Profit Entity shall respond to, and address, DBI comments, including through resubmittals of design, data, construction documents and revised applications no later than 7 days after delivery by DBI of comments, questions and/or issues lists. Delay in issuance of a Major Approval resulting in whole or in part from any failure by Non-Profit Entity to satisfy the conditions set forth in clauses (i)-(iii) of this Section or any act or omission of any NPE-Related Entity or any NPE Fault shall not be counted towards Major Approval Delay.

6.3.8.5 Notwithstanding the foregoing, the term "Major Approval Delay" also does not include and is not intended to address (i) City Changes relating to a Major Approval, the impact of which will be addressed in a Change Order, (ii) any Regulatory Approvals other than a Major Approval; (iii) additional work associated with a Project design change unless such design change is as a direct and sole result of a City Change or Delay Event (excluding Major Approval Delay); or (iv) any delay or impact relating to or arising out of the failure by any NPE-Related Entity to undertake the coordination activities with DBI contemplated by the Predevelopment Agreement or based on the results of a Reasonable Investigation (even if such delay otherwise would have been considered a Major Approval Delay but for such failure). Non-Profit Entity shall not rely upon any proposed schedules, durations or deadlines, if any, included in the Reference Documents with respect to a Major Approval, and Non-Profit Entity may not base any Claims for a time extension or additional compensation upon such proposed schedules, durations, and deadlines.

6.3.8.6 Subject to the limitations and restrictions in this Section 6.3.8 (Major Approval Delay) and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), relief for Major Approval Delay shall be in accordance with and subject to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).

6.3.8.7 Non-Profit Entity shall not be entitled to extension of any Contract Deadline or other relief for a Major Approval Delay pursuant to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).or otherwise unless all of the following conditions are satisfied (in addition to satisfaction of any conditions specified in Section 6.3.8 ((Major Approval Delay)):

(a) Non-Profit Entity has timely satisfied the “Major Approval Conditions to Assistance” requirements described in Section 6.3.8.2;

(b) Non-Profit Entity has provided evidence satisfactory to City that (i) Non-Profit Entity took advantage of Float available early in the Project Schedule for coordination activities with respect to DBI relating to the Major Approval, (ii) Non-Profit Entity has fulfilled its obligation to coordinate with DBI to prevent or reduce such delays, and (iii) Non-Profit Entity has otherwise made diligent efforts to obtain timely performance by DBI but has been unable to obtain such timely performance;

(c) There exist no circumstances which have delayed or are delaying the Major Approval, other than those that fit within the definition of a Major Approval Delay; and

(d) The delay is otherwise allowable under Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events).

6.4 Compliance with Laws

6.4.1 Applicable Laws

6.4.1.1 Non-Profit Entity shall comply with, and require that all Contractors comply with, all applicable Laws, including those set forth or described in Exhibit 16 (Federal, State and City Requirements).

6.4.1.2 All provisions required by applicable Laws to be included in this Agreement are incorporated by reference in this Agreement.

6.4.2 Environmental Compliance

6.4.2.1 Without limiting the generality of Section 6.4.1.1, Non-Profit Entity shall comply with, and require that all Contractors comply with, all Environmental Laws.

6.5 Compliance with Regulatory Approvals

Throughout the course of the Work, Non-Profit Entity shall:

(a) comply with all commitments, obligations, responsibilities, conditions and requirements imposed by all Regulatory Approvals, except, with respect to Environmental Approvals only, those obligations, commitments and responsibilities of City that are expressly allocated to City or a Third Party and are expressly excluded from Non-Profit Entity's scope of Work;

(b) undertake all actions required by, or necessary to maintain in full force and effect all Regulatory Approvals to be obtained by Non-Profit Entity; and

(c) comply with and implement, and cause Contractors to comply with and implement, all mitigation, monitoring, and reporting measures listed in the CEQA MMRP and the NEPA document or associated decision document, as applicable.

6.6 Communication and Public Outreach

6.6.1 Non-Profit Entity shall prepare and implement City's Public Outreach Plan developed pursuant to Section 1.15 of Division 1 of the Technical Requirements and Division 9 of the Technical Requirements.

6.6.2 Non-Profit Entity is prohibited from making any public announcement or disclosure with respect to the Project, whether for publication in the press, radio, television or any other medium, unless Non-Profit Entity has obtained City's prior written approval. Notwithstanding the foregoing, Non-Profit Entity may make public disclosures regarding this Agreement in connection with the public offering of Project Debt and/or as required by the continuing disclosure agreement executed in connection with the Project Debt.

6.7 Coordination, Cooperation and Access

6.7.1 Non-Profit Entity shall coordinate and cooperate with City, Third Parties, Utility Owners, Other Contractors and Governmental Entities with jurisdiction in matters relating to the Work, including facilitating their Oversight of the Work, as applicable, including pursuant to Sections 1.12 and 1.13 of Division 1 of the Technical Requirements. Non-Profit Entity shall coordinate and cooperate with Other Contractors that may be carrying out work within the Project Site or in the land adjoining or near the Project Site.

6.7.2 Non-Profit Entity shall provide City and City's representatives with:

(a) safe and unrestricted access to the Project Site and the Project at all times; and

(b) safe access during normal business hours to Non-Profit Entity's Project offices, operations buildings, and Temporary Areas.

6.7.3 Notwithstanding anything to the contrary in this Agreement, whenever City or its representatives are present on the Project Site and production facilities, including while conducting Oversight, they will abide by the applicable Contractor's reasonable, non-discriminatory safety policies and practices and will take appropriate measures to avoid unreasonable interference with normal construction activity.

6.7.4 Non-Profit Entity shall not interfere with the work of or cause any delay to any Other Contractors that may be carrying out work within the Project Site or in the land adjoining or near the Project Site and will allow them reasonable access to the Project Site, provided that Non-Profit Entity shall not be in breach of this Section 6.7.4 for any temporary interruption to the work of any Other Contractors that (a) has been agreed to in advance in accordance with procedures agreed to by Non-Profit Entity, such contractor and any relevant Third Party; or (b) is reasonably necessary in accordance with Law and Good Industry Practice to respond to emergencies creating an immediate and serious threat to public health, safety, security or the Environment.

6.8 Intentionally Deleted

6.9 Safety Compliance

6.9.1 City may from time to time issue Safety Compliance Orders to Non-Profit Entity with respect to the Project to implement Safety Compliance.

6.9.2 Promptly upon City obtaining Actual Knowledge of any circumstance or information relating to the Project that, in City's reasonable judgment, is likely to result in a Safety Compliance Order, City will provide Notice to Non-Profit Entity regarding the issue. Except in the case of an Emergency, City will consult with Non-Profit Entity before issuing a Safety Compliance Order concerning the risk to public or worker safety, alternative compliance measures, cost impacts, and the availability of Non-Profit Entity resources to fund the Safety Compliance work.

6.9.3 Where a Governmental Entity or other regulatory authority other than City directs a Safety Compliance Order, in order for Non-Profit Entity to comply with the Safety Compliance Order, City shall issue a corresponding Safety Compliance Order to Non-Profit Entity.

6.9.4 Non-Profit Entity shall implement each Safety Compliance Order as expeditiously as reasonably possible following its issuance. Non-Profit Entity shall diligently prosecute the work necessary to achieve such Safety Compliance until completion.

6.10 Law Enforcement and Security

6.10.1 Law Enforcement Services

6.10.1.1 Non-Profit Entity acknowledges and agrees that law enforcement agencies, including City in its regulatory capacity, are empowered to enforce all applicable Laws and to enter the

Project, and that any person engaged by City to provide law enforcement services has the authority to enter the Project, at any and all times to carry out their duties. Non-Profit Entity shall ensure that law enforcement agencies have necessary access to the Project to carry out their duties, power and jurisdiction.

6.10.1.2 City shall not have any liability or obligation to Non-Profit Entity arising out of, relating to or resulting from the failure of law enforcement agencies to provide services, or any of their, or their respective agents' or employees' acts, omissions, negligence or misconduct in providing services, except to the extent such failure, act, omission, negligence or misconduct otherwise qualifies as a Compensable Delay Event Relief under clause (i) of the definition thereof. The general indemnity in Section 10.6.1 (General Indemnity) shall not apply to the extent that a claim, cause of action, suit, legal or administrative proceeding or any other occurrence, loss or damage of the type listed in Section 10.6.1 (General Indemnity) is directly attributable to actions of a law enforcement agency designated by City to provide services for the Project, and is not due to any NPE Fault.

6.10.2 Security

6.10.2.1 Non-Profit Entity is responsible for the security of the Project and safety of the workers and public within the Project Site and the Infrastructure Facility during the performance of the D&C Work.

6.10.2.2 Non-Profit Entity shall comply with all rules, directives and guidance of the U.S. Department of Homeland Security and other comparable agencies, and shall coordinate and cooperate with all Governmental Entities providing security, first responder and other public emergency response services.

6.11 Warranties

6.11.1 Project Warranties

6.11.1.1 Non-Profit Entity warrants the Work against Defects during the period commencing on Substantial Completion of the Project and ending two years thereafter (the "**Warranty Period**"). The general warranty contained in this Section 6.11.1.1 is in addition to any express warranties provided for elsewhere in the Contract Documents. Non-Profit Entity warrants, and shall cause Principal Project Company to warrant, that:

(a) the Work shall be free of Defects, except to the extent that such Defects are inherent in prescriptive specifications included in the Contract Documents;

(b) materials and equipment furnished by or on behalf of any NPE-Related Entity under the Contract Documents shall be of good quality and when installed, shall be new;

(c) equipment furnished by or on behalf of any NPE-Related Entity shall be in good working condition;

(d) the Work shall meet all of the requirements of the Contract Documents and Good Industry Practice;

(e) the Work shall be free of Deviations that have not been approved by City; and

(f) the Project shall be fit for use for the intended function as contemplated by the Contract Documents.

6.11.1.2 Non-Profit Entity shall perform, at Non-Profit Entity's sole cost and expense, the Warranty Work:

(a) with respect to which City delivers written Notice to Non-Profit Entity within the Warranty Period; or

(b) of which Non-Profit Entity otherwise has Actual Knowledge before the expiry of the Warranty Period.

6.11.1.3 Subject to Section 6.11.1.5, Non-Profit Entity shall perform the Warranty Work in accordance with the below:

(a) for emergency repairs, Non-Profit Entity shall commence within 2 Business Days, and complete promptly, following written Notice of the relevant Defect from City or Non-Profit Entity's Actual Knowledge thereof, whichever is earlier; and

(b) for all other Defects, Non-Profit Entity shall commence within 5 Business Days, and complete within 14 days, following written Notice of the relevant Defect from City or Non-Profit Entity's Actual Knowledge thereof, whichever is earlier.

6.11.1.4 If the nature of the Defect is such that the Warranty Work cannot with diligence be completed within the time period under Section 6.11.1.3 and Non-Profit Entity has commenced and is diligently pursuing meaningful steps to promptly complete the Warranty Work, Non-Profit Entity shall have such additional period of time as is necessary to diligently complete the Warranty Work. During such period in excess of the time periods under Section 6.11.1.3, Non-Profit Entity shall provide Notice to City every 10 days reasonably detailing the status of the Warranty Work, the diligent steps taken by Non-Profit Entity to complete the Warranty Work, the diligent steps planned by Non-Profit Entity to be taken to complete the Warranty Work during the next 10 days and the then-current projected schedule for completion of the Warranty Work. Non-Profit Entity shall promptly provide Notice to City in writing of completion of Warranty Work.

6.11.1.5 If Non-Profit Entity fails to commence or pursue with diligence and complete the Warranty Work as required, City may provide written Notice of such failure to the Non-Profit Entity. If the Non-Profit Entity's failure continues for three Business Days after the City delivers this Notice, the City may, in its sole discretion, perform the Warranty Work, and Non-Profit Entity shall reimburse City within seven days after any written demand from City for Recoverable Costs incurred by City in connection with the performance of the Warranty Work, including any related reasonable attorneys' and consultants' fees and expenses.

6.11.1.6 In the event of an emergency constituting an immediate hazard to health or safety of Building Occupants or City property due to a Defect, City may undertake, at Non-Profit Entity's

sole cost and expense and without prior Notice, all work necessary to correct such hazardous condition(s).

6.11.1.7 Before expiry of the Warranty Period, Non-Profit Entity shall execute and deliver to City a written assignment, in form and substance reasonably acceptable to City and effective as at the end of the Warranty Period, of all Non-Profit Entity's and Contractors' right, title and interest in and to all warranties, and to the extent assignable, claims and causes of action held by Non-Profit Entity or its Contractors against Third Parties, concerning the Work.

6.11.1.8 The warranties set forth in this Section 6.11 shall not apply to the extent:

(a) That City has materially altered the Construction Work after Substantial Completion and such alteration is the direct and primary cause of the failure of such Construction Work to meet the warranties;

(b) That City has materially improperly operated or maintained the Construction Work and such failure by City is the direct and primary cause of the failure of such Construction Work to meet the warranties;

(c) Of normal wear and tear;

(d) Of City's gross negligence; or

(e) Of City's breach of the Contract Documents in incorporating material or equipment into the Project and such failure by City is the direct and primary cause of the failure of such Construction Work to meet the warranties.

6.11.1.9 The Warranty Work and Non-Profit Entity's obligations under the Contract Documents during the Warranty Period shall be secured throughout the Warranty Period by the D&C Performance Bond and the D&C Payment Bond.

6.11.1.10 The warranties set forth in this Section and the Contract Documents are in addition to all rights and remedies available under the Contract Documents or applicable Law or in equity, and the occurrence of Final Acceptance and the expiration of the Warranty Period shall not relieve Non-Profit Entity or any NPE-Related Entity of any liability or responsibility expressly imposed by the Contract Documents after the Warranty Period or applicable Law with respect to the Work, including liability for design defects, latent construction defects, other defects, strict liability, breach, negligence, willful misconduct or fraud; provided that the obligations of Non-Profit Entity specified in this Agreement with respect to Warranty Work shall only apply to a Defect or Nonconforming Work if the relevant Defect or Nonconforming Work is notified to Non-Profit Entity before the end of the Warranty Period. Nothing in this section shall extend any statute of limitations under applicable Law with respect to the Work.

6.11.2 Contractor Warranties and Guaranties

6.11.2.1 Non-Profit Entity shall obtain from Principal Project Company and shall obtain, or shall cause the Principal Project Company to obtain, from the D&C Contractor, warranties identical to Non-Profit Entity's warranty under Section 6.11.1, which warranties shall all extend not only to Non-Profit Entity and Principal Project Company but also to City and any Utility Owner or Authority Having Jurisdiction for whom Work is being performed. Non-Profit Entity

shall obtain from all other Contractors representations, warranties, guarantees and obligations in accordance with Good Industry Practice for work of similar scope and scale, with respect to design, materials, workmanship, equipment, tools and supplies furnished by all such Contractors and Suppliers, which shall extend not only to Non-Profit Entity but also to City and any Utility Owner or Authority Having Jurisdiction for whom Work is being performed. The warranties from Key Contractors (other than the D&C Contractor) shall be for such periods as specified in the Technical Requirements or, if not specified, a period of not less than two years from the date of the Certificate of Substantial Completion. All representations, warranties, guarantees and obligations of Key Contractors: (a) shall be written so as to survive all City and any Third Party inspections, tests and approvals; and (b) shall provide that upon expiration or any earlier termination of this Agreement before the expiration of such representations, warranties, guarantees and obligations they shall automatically be for the benefit of and enforceable by City and its successors and assigns, and any Utility Owner or Authority Having Jurisdiction for whom Work is being performed, subject to the rights of the Lenders as provided in any Direct Agreement.

6.11.2.2 To the extent that any Contractor warranty or guaranty is voided after termination of this Agreement by reason of Non-Profit Entity's negligence or failure to comply with the requirements of the Contract Documents in incorporating material or equipment into the Project, Non-Profit Entity shall correct any Defects which would otherwise have been covered by such warranty.

6.11.2.3 Contractor warranties are in addition to all rights and remedies available under the Contract Documents or applicable Law, and shall not limit Non-Profit Entity's liability or responsibility imposed by the Contract Documents or applicable Law with respect to the Work, including liability for design Defects, construction Defects, strict liability, breach, negligence, willful misconduct or fraud.

6.11.3 Warranties for Utility Owners and Authorities Having Jurisdiction

If required by the Utility Owner or Authority Having Jurisdiction, as applicable, Non-Profit Entity shall provide, or obtain and ensure performance under as if Non-Profit Entity provided, warranties and guaranties, for all Work performed by any NPE-Related Entity for Utility Owners and Authorities Having Jurisdiction, for two years after the date of acceptance of such work by the Utility Owner or Authority Having Jurisdiction, as applicable or such longer term as provided in any agreement between an NPE-Related Entity and the Utility Owner or Authority Having Jurisdiction, for the benefit (with rights of enforcement) of such Utility Owner or Authority Having Jurisdiction. City shall have, and shall be identified as a third party beneficiary of the right to enforce, all such warranties and guaranties of such work. Upon acceptance of such work by the Utility Owner or Authority Having Jurisdiction, as applicable, and delivery of an assignment of the relevant warranty and guaranty rights, Non-Profit Entity shall be relieved of responsibility for maintenance of such work.

6.12 Maintain Good Standing

6.12.1 Non-Profit Entity shall remain qualified to do business in the State and remain in and maintain good standing and shall undertake all actions to do so, including continued timely submission of all required information and payments when due to the California Secretary of State, Franchise Tax Board, Internal Revenue Service, or any other applicable agency or entity.

Non-Profit Entity shall immediately provide Notice to City if it is no longer duly qualified and in good standing.

6.12.2 Non-Profit Entity shall ensure that each Key Contractor shall remain duly qualified to do business in the State and in good standing throughout the term of the Key Contract and immediately provide Notice to City if a Key Contractor is no longer duly qualified or in good standing.

ARTICLE 7. DESIGN AND CONSTRUCTION

7.1 General Obligations of Non-Profit Entity Concerning D&C Work

7.1.1 Non-Profit Entity shall:

(a) expeditiously and diligently progress performance of the D&C Work to achieve Substantial Completion by the Substantial Completion Deadline;

(b) carry out or do all things necessary to perform the D&C Work and design and construct the Infrastructure Facility in accordance with the Contract Documents and Good Industry Practice;

(c) ensure the Infrastructure Facility meets the requirements of the Contract Documents, including that the Infrastructure Facility be constructed in compliance with the San Francisco Green Build Code (Chapter 7 (Green Building Requirements for City Buildings) of the San Francisco Environment Code) and achieve LEED Gold certification**;**

(d) provide maintenance and other services as described in the Contract Documents;

(e) ensure adequate materials, equipment and resources are available to ensure compliance with the requirements of the Contract Documents under normal conditions and reasonably anticipated abnormal conditions;

(f) ensure all materials and equipment are of good quality and new unless otherwise expressly stated;

(g) ensure, as of the Substantial Completion Date, the Construction Work shall be free of Defects, errors and omissions, except as may be set out in the Punch List (which shall be fully resolved as of Final Acceptance of the Infrastructure Facility);

(h) ensure, as of the Substantial Completion Date, the Design Work meets each of the requirements set out in this Agreement;

(i) ensure the Project Site is kept in a safe, secure, neat and clean condition at all times;

(j) cooperate with City and Authorities Having Jurisdiction in all matters relating to the D&C Work, including their Oversight of D&C Work;

(k) remove and replace Nonconforming Work and/or materials, whether discovered or rejected by City or Non-Profit Entity, or otherwise remedy such Nonconforming Work and/or materials in an acceptable manner and in accordance with the requirements of the Contract Documents;

(l) pay all direct and indirect costs for all Utility services required to perform and complete the D&C Work in accordance with the requirements of the Contract Documents; and

(m) without duplication, perform all Warranty Work during the Warranty Period.

7.2 Performance, Design and Construction Standards

7.2.1 Non-Profit Entity shall construct and equip the Infrastructure Facility in accordance with the Project's Release for Construction Documents, taking into account the Project Site limits and other constraints affecting the Project.

7.2.2 The Project design and construction shall be subject to certification in accordance with the procedures contained in the approved NPE's Design Quality Plan and NPE's Construction Quality Plan.

7.2.3 Non-Profit Entity shall use reasonable efforts to identify and provide Notice to City of any specifications or other provisions in the Technical Requirements that are erroneous, create a potentially Unsafe Condition, or may be inconsistent with Good Industry Practice or applicable Law. Such Notice must include a request for City approval of a Deviation or changes to the provision that Non-Profit Entity believes are necessary to render it correct, safe and consistent with Good Industry Practice and applicable Law. If Non-Profit Entity commences or continues any D&C Work affected by the change after the need for the change was known, or should have been known through the exercise of reasonable care, Non-Profit Entity shall bear any additional costs and time associated with redoing the D&C Work already performed.

7.2.4 After Commercial Close, City may modify relevant provisions of the Technical Requirements to incorporate any changed, added or replaced Standards and Specifications applicable to the D&C Work by delivering a City Change to Non-Profit Entity.

7.3 Design Implementation

Non-Profit Entity, through appropriately qualified professional engineers and architects registered and licensed in the State and identified in Non-Profit Entity's Project Management Plan, shall furnish designs, plans and specifications in accordance with the Contract Documents. Non-Profit Entity shall cause the architect(s) of record and/or Engineer(s) of Record for the Project to sign and seal all Final Design Documents.

7.4 Schedule, Deadlines, Notices to Proceed and Commencement of Work

7.4.1 Project Schedule

7.4.1.1 Subject to occurrence of a Delay Event resulting in an extension of time in accordance with this Agreement, if any, Non-Profit Entity represents and warrants that, as of the Effective Date, its Project Schedule represents a practical schedule to complete performance of the Work through Final Acceptance and is consistent with applicable deadlines.

7.4.1.2 Between the Effective Date and the earlier of NTP2 and approval of Non-Profit Entity's Project Schedule in accordance with Section 7.4.1.3, Non-Profit Entity shall perform the Work in accordance with the Initial Schedule.

7.4.1.3 Non-Profit Entity shall submit to City, for City review and approval, a proposed detailed Project Schedule in accordance with Section 1.2 of Division 1 of the Technical Requirements and Exhibit 11 (Submittal Review Process).

7.4.1.4 Upon City's approval, the detailed Project Schedule becomes the Project Schedule and Non-Profit Entity shall perform the remaining Work in accordance with such Project Schedule.

7.4.1.5 The Parties shall use the Project Schedule for planning and monitoring the progress of the D&C Work. The Project Schedule shall include the deadlines for Substantial Completion and Final Acceptance of the Infrastructure Facility.

7.4.1.6 Non-Profit Entity shall not be limited in the sequencing or staging of the D&C Work, except to the extent that the Contract Documents or applicable Law imposes limitations.

7.4.1.7 Non-Profit Entity acknowledges and agrees that the Contract Deadlines provide reasonable and adequate time to perform the Work required within the Contract Deadlines, subject only to Non-Profit Entity's rights to obtain time extensions under Article 14 (Compensation and Other Relief for Delay Events).

7.4.2 Float

7.4.2.1 All Float contained in the Project Schedule, or as generated during the course of the Work, shall be a project resource and available to both City (except to the extent of City Fault) and Non-Profit Entity (except to the extent of NPE Fault), and shall not be considered as time for exclusive use or benefit of either City (except to the extent of NPE Fault) or Non-Profit Entity (except to the extent of City Fault). Non-Profit Entity shall cause each Prime Contractor to acknowledge Float to be available to City as well as Non-Profit Entity on the terms herein as needed to absorb delay caused by Delay Events or other events, achieve interim completion dates and achieve Contract Deadlines.

7.4.2.2 All Float shall be identified as such in the Project Schedule on each affected schedule path. City shall have the right to examine the identification of (or failure to identify) Float on the Project Schedule in determining whether to approve the Project Schedule. Once identified, Non-Profit Entity shall monitor, account for and maintain Float in accordance with critical path methodology.

7.4.3 Commencement of Non-Construction Work

Except as provided in Section 7.4.6 (Work Before NTP 1), Non-Profit Entity shall not commence any Work until City has issued NTP 1 authorizing commencement of non-Construction Work. City shall promptly issue NTP 1 when all of the conditions set forth in Exhibit 15A (Conditions to NTP 1 - Commencement of Non-Construction Work) have been satisfied.

7.4.4 Commencement of Construction Work

Non-Profit Entity shall not commence any portion of the Construction Work until City has issued NTP 2 authorizing commencement of the applicable portion of Construction Work. City shall promptly issue NTP 2 when all of the conditions set forth in Exhibit 15B (Conditions to NTP 2 - Commencement of Construction Work) have been satisfied.

7.4.5 References in the Technical Requirements to Standards and Specifications relating to the D&C Work shall mean the most recent editions in effect as of the Setting Date, unless expressly provided otherwise.

7.4.6 Work Before NTP 1

7.4.6.1 Except as provided in Section 7.4.6.2 and as may be provided pursuant to any Early Works Agreement between Non-Profit Entity and City, Non-Profit Entity shall not perform any Work prior to NTP 1.

7.4.6.2 Before NTP 1, Non-Profit Entity shall perform all Work required to achieve Financial Close, and otherwise undertake all efforts to satisfy the conditions set forth in Exhibit 15A (Conditions to NTP 1 - Commencement of Non-Construction Work). If Financial Close fails to occur, City shall have no obligation to reimburse Non-Profit Entity for any of its costs incurred relating to this Agreement, other than payments allowed under Section 3.6 (No-Fault Termination).

7.5 Acquisition of Real Property

7.5.1 Additional Acquisitions

7.5.1.1 If Non-Profit Entity identifies any property that is not subject to Section 7.5.1.2 but that Non-Profit Entity seeks to add to the Project Site to accommodate Non-Profit Entity's particular design or for Non-Profit Entity's convenience in performing the Work, then Non-Profit Entity may submit to City a request for acquisition of additional property interests and related documentation as reasonably requested by City. In such event, Non-Profit Entity shall prepare and submit to City for review and approval new or revised surveys, legal descriptions, a preliminary title report and a copy of all encumbrances of record, draft site plats, design and other appropriate documentation of basis of acquisition and justification of acquisition. Non-Profit Entity's request shall include an analysis identifying alternative approaches that could be adopted to avoid the need for the acquisition, including use of retaining walls and other design modifications. Following delivery of a request under this Section 7.5.1.1:

(a) City will review the request and supporting documentation and will determine whether the proposed acquisition appears to be appropriate for the Project, whether any additional information or documentation is necessary for the acquisition, and the anticipated schedule for the acquisition;

(b) upon agreement between City and Non-Profit Entity regarding the acquisition of any additional property, Non-Profit Entity shall support the acquisition as requested by City; and

(c) prior to acquisition of any additional property interests under this Section 7.5 (Acquisition of Real Property), Non-Profit Entity shall provide to City any additional documentation required by City for the acquisition.

7.5.1.2 If City chooses to acquire property proposed for acquisition by Non-Profit Entity pursuant to Section 7.5.2.1 ("**Additional Properties**"), City will proceed with the acquisition, subject to this Section 7.5 (Acquisition of Real Property). In all situations, City has no obligation to acquire any Additional Property.

7.5.1.3 Non-Profit Entity shall be responsible for the cost to acquire Additional Properties, together with all costs and expenses incurred by City in connection with acquiring Additional Properties. In paying all such costs and expenses, Non-Profit Entity is not acquiring, and shall not be deemed to be acquiring, any interest in real property for Non-Profit Entity. Such costs and expenses shall include:

(a) the cost of acquisition services, relocation services and associated document preparation costs;

(b) the cost of relocation assistance in accordance with applicable Law;

(c) the cost of condemnation proceedings, including attorneys' and expert witness fees, and all fees and expenses for production of exhibits, transcripts, photos and other documents and materials;

(d) the acquisition price of the Additional Properties and associated appraisals, costs, settlements, offers of judgment, court awards or judgments, including pre-judgment and post-judgment interest, costs, attorney's fees, claims for loss of business goodwill and any other consideration for the Additional Properties;

(e) the cost of permanent or temporary acquisition of leases, easements, rights of entry, licenses and other interests in real property, including for drainage, temporary work space, Temporary Areas, and any other convenience of Non-Profit Entity;

(f) the cost of permitting; and

(g) closing costs in accordance with City policies.

7.5.1.4 City will submit statements to Non-Profit Entity regarding Recoverable Costs relating to acquisition of Additional Properties, not more often than monthly. Non-Profit Entity shall reimburse City for Recoverable Costs within 30 days of receipt of an invoice. In addition to any other remedy, City shall have the right to curtail or suspend acquisition activities if Non-Profit Entity for any reason fails to pay any such invoice in full when due. City will resume acquisition activities promptly after delinquent amounts are paid in full with interest.

7.5.1.5 Non-Profit Entity shall bear all risk of delays related to acquisition of Additional Properties and the risk that an Additional Property is not able to be acquired. Each Additional Property shall become part of the Project Site only upon City's written Notice to Non-Profit Entity indicating that the Additional Property has been acquired and that City grants Non-Profit Entity access to the Additional Property.

7.5.1.6 Non-Profit Entity shall not be entitled to any compensation or any extension of any Contract Deadline under the Contract Documents or otherwise entitled to make a Claim as a result of (i) site conditions associated with any Additional Properties (including those relating to Hazardous Materials, differing site conditions, or Utilities)

7.5.2 Temporary Interests in Property

7.5.2.1 Non-Profit Entity shall be solely responsible for acquisition of any temporary interests in property that Non-Profit Entity determines is necessary, desirable or advisable to obtain in connection with the Project or the Work. Non-Profit Entity shall pay directly the cost to acquire, maintain, operate, and/or dispose of all such property interests. If the property is within the limits of any real property scheduled for acquisition by City or is intended to be used for permanent improvements, or if Non-Profit Entity intends to request City to acquire such real property, Non-Profit Entity shall coordinate with City and shall not negotiate with the owner(s) of such interests except with express permission of City and in compliance with applicable Law.

7.5.2.2 City shall have no obligation to acquire temporary interests in property. Non-Profit Entity shall solely bear the risk of any delays and cost impacts related to acquisition of temporary interests, regardless of whether City agrees to undertake any such acquisition.

7.5.2.3 Non-Profit Entity shall promptly provide Notice to City regarding all temporary interests in property that it or any of its Contractors acquires in the vicinity of the Project.

7.5.3 Property Acquisitions and Scheduling Work

7.5.3.1 Non-Profit Entity's Project Schedule shall not provide for any Work to be done on any Additional Properties acquired or to be acquired in accordance with Section 7.5.1 (Additional Acquisitions) until after City has granted Non-Profit Entity access to the Additional Property in writing.

7.5.3.2 Concurrently with the initial review of the Project Schedule, Non-Profit Entity and City shall meet to discuss:

(a) Non-Profit Entity's access requirements associated with planned activities and the extent to which delay in access to property identified for acquisition under Section 7.5.1 (Additional Acquisitions) is likely to affect a Critical Path;

(b) what efforts (if any) could reasonably be undertaken by the Parties to accelerate acquisition of any critical real property interests;

(c) whether schedule delays may be avoided by providing access to property subject to conditions or restrictions;

(d) whether any changes should be made to the Project Schedule; and

(e) whether anticipated covenants, conditions and restrictions affecting access will affect Non-Profit Entity's ability to perform Work as scheduled, and how to mitigate any such problems.

7.5.3.3 Non-Profit Entity shall coordinate with City regarding:

(a) completion of Project design and identification of final site requirements and construction impacts;

(b) any adjustments to the Project Schedule necessary to reflect City's expected timeline to acquire any property identified for acquisition under Section 7.5.1 (Additional Acquisitions); and

(c) any design features that may impact properties for which no property acquisition is contemplated, with the goal of avoiding damages to properties not previously identified and addressed.

7.6 Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay

7.6.1 Utilities to Serve Facility

7.6.1.1 Non-Profit Entity shall be solely responsible for obtaining and implementing all new Utility services needed for the Infrastructure Facility, and must timely submit the appropriate applications to obtain electricity, water, sewer, cable, etc. This work expressly includes obtaining electricity and power from PG&E for the Project, including all applications and coordination required to obtain such Utility services.

7.6.1.2 City shall, from time to time as required, enter into contracts with Energy suppliers for the supply of Energy to the Infrastructure Facility and shall be responsible for all payments due pursuant to such supply contracts. For avoidance of doubt, the Infrastructure Facility's electricity, natural gas, water, and other such Utility bills will be sent to City and City will be responsible for paying such utility bills. Non-Profit Entity will be provided with copies of the invoices.

7.6.2 Non-Profit Entity's General Responsibilities

7.6.2.1 Subject to and in accordance with the terms of this Agreement, Non-Profit Entity shall be responsible for all Utility Adjustments required by the Project.

7.6.2.2 City agrees to cooperate as reasonably requested by Non-Profit Entity in advancing Utility Adjustments, including attendance at negotiation sessions and review with Utility Owners. Non-Profit Entity shall timely keep City informed of the status of any such negotiations.

7.6.2.3 Non-Profit Entity shall bear the sole risk, cost and schedule impact of Utility Adjustments other than, subject to Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), as a direct result of a City Change or Delay Event.

7.6.3 Avoiding Utility Adjustments and Minimizing Costs

7.6.3.1 Non-Profit Entity shall minimize Utility Adjustments in the design and construction of the Infrastructure Facility and costs for which Non-Profit Entity may be entitled to additional compensation pursuant to the Contract Documents, including by taking into account existing Utilities (and their location) in its design and working around existing Utilities (including existing PG&E poles at or adjacent to the Project Site), including through its construction sequencing, means and methods. If a Utility Adjustment could have been avoided through Non-Profit Entity undertaking a Reasonable Investigation prior to the Setting Date, then, to the extent of such Utility Adjustment Costs resulting from such failure to undertake a Reasonable Investigation,

Non-Profit Entity shall bear the full risk and liability associated with such Utility Adjustment, irrespective of any other provisions in this Agreement that might provide compensation, time or other relief in connection with such Utility Adjustment.

7.6.3.2 Non-Profit Entity shall reimburse City for any costs City incurs as a result of Non-Profit Entity's failure to comply with the requirements of this Section 7.6.3 (Avoiding Utility Adjustments and Minimizing Costs).

7.6.4 Allocation of Work Responsibility

7.6.4.1 The allocation of responsibility for performing Utility Adjustment design, construction, and/or materials procurement for each Utility Adjustment as between Non-Profit Entity and the Utility Owner shall be determined in accordance with Section 1.13 of Division 1 of the Technical Requirements (including pursuant to the Utility Coordination Work Plan and Utility Project Execution Plan). For purposes of this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay) and Section 1.13 of Division 1 of the Technical Requirements, references to responsibility for performing Utility Adjustment design and construction include all tasks customarily associated therewith; provided, however, that Non-Profit Entity shall be responsible for all coordination with Utility Owners that is necessary in order to accomplish the Utility Adjustments in compliance with the requirements of the Contract Documents.

7.6.4.2 Non-Profit Entity is responsible for scheduling all Utility Adjustments so as allow for the issuance of NTP 2 as soon as practicable and to meet all applicable Contract Deadlines, without regard to whether a Utility Adjustment is performed by Non-Profit Entity or by the affected Utility Owner (or its contractors). Accordingly, under no circumstances shall any reallocation of responsibility for Utility Work between Non-Profit Entity and a Utility Owner be considered grounds for a time extension hereunder.

7.6.4.3 No increase or decrease in compensation payable to Non-Profit Entity shall be made pursuant to this Section 7.6.4 (Allocation of Work Responsibility) on account of any change in the allocation of responsibility for Incidental Utility Work, or any other matter for which the Contract Documents specify how liability, cost or risk is to be allocated between City and Non-Profit Entity.

7.6.5 Utility Adjustment Costs

7.6.5.1 Non-Profit Entity is responsible for all costs of the Utility Work, including costs of acquiring Utility easements and costs with respect to relinquishment or acquisition of Utility Owner property interests, but excluding (a) costs attributable to Utility Betterments, for which the Utility Owner is responsible and which are not paid to Utility Owner by City; and (b) any other costs for which the Utility Owner is responsible under Law which are not paid to Utility Owner by City. Non-Profit Entity shall fulfill this responsibility either by performing the Utility Work at its own cost, if permitted by the Utility Owner, or by reimbursing the Utility Owner for the Utility Owner's performance of the Utility Work, in accordance with Section 7.6.5.4. Non-Profit Entity shall bear the costs due to the Utility Owner and all costs and expenses associated therewith, including the costs of Utility Owner inspections and any overtime charges incurred by the Utility Owner. Non-Profit Entity is solely responsible for collecting directly from the Utility Owner any amount due to Non-Profit Entity for Utility Betterment costs or other costs incurred by Non-Profit Entity for which the Utility Owner is responsible, whether under Law or otherwise.

7.6.5.2 If for any reason Non-Profit Entity is unable to collect any amounts due to Non-Profit Entity from any Utility Owner, then as between City and Non-Profit Entity, (a) City shall have no liability for such amounts, (b) Non-Profit Entity shall have no right to collect such amounts from City or to offset such amounts against amounts otherwise owing from Non-Profit Entity to City, and (c) Non-Profit Entity shall have no right to stop Work, sue for *mandamus*, demand or plead in any court for City's participation in resolution of any dispute with the Utility Owner, or seek to exercise any other remedies against City on account of the Utility Owner's failure to pay.

7.6.5.3 Non-Profit Entity shall maintain a complete set of records for the costs of Utility Work performed (whether incurred by Non-Profit Entity or by the Utility Owner), in a format reasonably satisfactory to City and in sufficient detail for analysis. For both Utility Owner costs and Non-Profit Entity costs, the totals for each cost category shall be shown in such manner as to permit comparison with the categories stated on the estimate. Non-Profit Entity. All records with respect to Utility Work shall comply with the record keeping and audit requirements of the Contract Documents.

7.6.5.4 To the extent that City is required to initially pay a Utility Owner for any costs related to Utility Owner's performance of Utility Work under this Section 7.6.5 (Utility Adjustment Costs), Non-Profit Entity, on a monthly basis, shall reimburse City for any costs incurred in connection with such Utility Work. The amounts reimbursed shall be due and payable within 10 days after receipt of City's invoice for such Utility Work. City, in its sole discretion, may also deduct the amount to be reimbursed from Milestone Payment 2 in accordance with this Agreement, or any other payment due and payable to Non-Profit Entity on or before the Substantial Completion Date, should Non-Profit Entity fail to reimburse City for such Utility Work. Following the Substantial Completion Date, City may require Non-Profit Entity to pay City amounts owing under this Section 7.6.5.4, collect such amounts from the Performance Bond and/or exercise any such rights and remedies set forth in Section 11.6.3.

7.6.5.5 The Non-Profit Entity shall have Allowances for Underground Existing PG&E Power Lines Work, New PG&E Service Work, and Work associated with the temporary removal and new OCS installation outside of the Project Site, as described in Section 11.12. Once each Allowance is fixed under Section 11.12.1(d), Work subject to these Allowances are subject to the terms of this Section 7.6 with respect to Utility Work.

7.6.6 Incidental Utility Work

Notwithstanding any contrary provision of the Contract Documents, Non-Profit Entity shall be responsible for all Incidental Utility Work without regard to the allocation of Work responsibility otherwise established pursuant to this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay). Without limiting the provision of Section 7.6.2.3, Non-Profit Entity also shall be responsible for furnishing all designs for Incidental Utility Work that Non-Profit Entity performs, unless such designs are included among that portion of the Utility Work to be performed by the Utility Owner. Non-Profit Entity shall not be entitled to any adjustment in its compensation or Contract Deadlines on account of costs incurred, cost savings or delays associated with the performance of Incidental Utility Work by Non-Profit Entity or by any Utility Owner.

7.6.7 Bonds and Insurance; Security for Utility Adjustment Costs

7.6.7.1 All Utility Work shall automatically be covered by the Payment Bonds and Performance Bonds described in Section 10.2 (Performance Security) and by the insurance described in Section 10.1 (Insurance).

7.6.7.2 Non-Profit Entity shall satisfy all requirements of Utility Owners to provide security for reimbursement of Utility Adjustment costs to which the Utility Owner is entitled and that are the responsibility of Non-Profit Entity hereunder.

7.6.8 Utility Investigation by Non-Profit Entity

7.6.8.1 During the PDA Term, Non-Profit Entity has undertaken an investigation of Utilities affecting the Project Site and the Offsite Utility Work, including Utilities located on, in, under, around or impacting the Project Site and the Project. With respect to Utilities affecting the Project Site, Non-Profit Entity represents and warrants that it has analyzed Reference Documents, diligently commenced coordination concerning Utility Adjustments (including submitting and actively pursuing relocation applications to Utility Owners with respect to impacted Utilities, taking into account the Project Schedule), contacted and made reasonable inquiries of Utility Owners, performed substantial surface inspections of the Project Site and undertaken such additional inspections, including substantial subsurface utility investigations, as it deems appropriate and as are required by the Contract Documents and in keeping with Good Industry Practice to verify, fully and accurately identify all Utilities (including contacting and accessing Non-Dig Alert Utilities), addressing all field conditions, and reasonably validating the Utility Information. With respect to Unidentified Offsite Utilities affecting the Offsite Utility Work, Non-Profit Entity represents and warrants that it has undertaken an Offsite Utilities Reasonable Investigation. Non-Profit Entity acknowledges that its rights to any compensation, time or other relief in connection with Utilities, Unidentified Utilities, Unidentified Offsite Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay is conditioned on the accuracy of the foregoing representations and warranties.

7.6.8.2 Except as otherwise provided in Sections 7.6.2.3, 7.6.9 (Claims for Inaccuracies in Utility Information), 7.6.13 (Major Utility Adjustment Delays) 7.6.16 (Claims for Unidentified Offsite Utilities), and 7.6.17 (PG&E Offsite Utility Delay), the Parties specifically intend by Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay) to delegate to Non-Profit Entity the obligation to perform all responsibilities with respect to identification of all existing Utilities and to allocate to Non-Profit Entity all risk of increased costs and time of the Utility Work resulting from inaccuracies in the reputed locations of such facilities (and in any other relevant information with respect to such facilities).

7.6.9 Claims for Inaccurate Utility Information

7.6.9.1 Subject to the limitations and restrictions in this Section 7.6.9 (Claims for Inaccurate Utility Information) and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), relief for Inaccurate Utility Information shall be in accordance with and subject to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).

7.6.9.2 Non-Profit Entity shall not be entitled to any compensation pursuant to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events). or otherwise for any of the following:

(a) Increased costs of the Work attributable to Unidentified Utilities and Non-Dig Alert Utilities, to the extent that the existence of the facility was known to Non-Profit Entity as of the Setting Date or could have been inferred from a Reasonable Investigation or otherwise from the presence of other facilities, such as buildings, meters, junction boxes, manholes or identifying markers, visible during a surface inspection of the area conducted prior to the Effective Date;

(b) Increased costs of the Work attributable to Unidentified Utilities and Non-Dig Alert Utilities to the extent that Non-Profit Entity failed to provide timely Notice in accordance with Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events);

(c) Increased costs of the Work attributable to Unidentified Utilities and Non-Dig Alert Utilities that can be Protected in Place or removed rather than physically relocated;

(d) Any additional costs incurred by Utility Owners (that are not reimbursable or payable to the Utility Owner) as a result of the Unidentified Utility;

(e) Increased costs of the Utility Work attributable to all other Utilities that are not Unidentified Utilities or Non-Dig Alert Utilities; and

(f) Delay Costs, extended overhead and delay and disruption damages, except as specifically set forth in the Contract Documents.

7.6.10 Changes in Design

7.6.10.1 For purposes of this Section 7.6.10 (Changes in Design), a Project design change impacting Utility Adjustments is a change that (a) requires a Utility Adjustment that was not listed in the Utility Information; or (b) necessitates acquisition of a Utility Easement not included in the real property rights comprising the Project Site.

7.6.10.2 Inasmuch as Non-Profit Entity is both furnishing the design of and constructing the Project, Non-Profit Entity may have opportunities to reduce the costs of certain portions of the Work, which may increase the costs of certain other portions of the Work or of Utility Work to be performed by Utility Owners. In considering such opportunities, Non-Profit Entity shall consider the impact of Project design changes on Utility Adjustments with the overall goal of minimizing the necessity for Utility Adjustments to the extent practical, in compliance with Section 7.6.3 (Avoiding Utility Adjustments and Minimizing Costs). Accordingly, except for cost increases or decreases resulting from City Changes in Project design affecting Utility Work or from Delay Events requiring Project design changes affecting Utility Work, and notwithstanding any other contrary provision of the Contract Documents, the following rules shall apply with respect to Project design changes during the course of the Project which either reduce the nature or extent of or eliminate any Utility Adjustment, or result in unanticipated Utility Adjustments or an increase in the nature, extent, or costs of anticipated Utility Adjustments:

(a) Non-Profit Entity shall not be entitled to extension of any Contract Deadline on account of delays resulting from any such design changes (including delays in acquisition of Utility Easements by City or Utility Owners);

(b) Non-Profit Entity shall not be entitled to any increase in compensation for any additional costs which Non-Profit Entity incurs as a result of such design changes (including additional costs of Utility Work, the costs of any additional Work on other aspects of the Project undertaken in order to facilitate the avoidance or minimization of Utility Adjustments, and/or increased costs resulting from any Project Site conditions associated with Utility Easements made necessary by such design changes); and

(c) If City incurs any additional costs as a result of such design changes (including any increases in amounts owed by City to Utility Owners, e.g., for work which is unusable or which must be redone), then Non-Profit Entity shall reimburse City for such costs within 10 days after receipt of City's invoice therefor, or in the sole discretion of City, City may deduct the amount of reimbursement due from Milestone Payment 2 in accordance with this Agreement, or any other payment due and payable to Non-Profit Entity under the Contract Documents on or before the Substantial Completion Date, should Non-Profit Entity fail to reimburse City for such costs. Following the Substantial Completion Date, City may require Non-Profit Entity to pay City amounts owing under this Section 7.6.10.2, collect such amounts from the Performance Bond and/or exercise any such rights and remedies set forth in Section 11.6.3.

This Section 7.6.10 (Changes in Design) shall not apply to any changes in design made to accommodate any Change in Law.

7.6.11 Utility Betterments

Non-Profit Entity shall be responsible for addressing any requests by Utility Owners that Non-Profit Entity design and/or construct a Utility Betterment. Notwithstanding any other provision of this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay), no Work, Utility Adjustments or other Utility-related items initially included in the Work shall be considered a Utility Betterment. Any Utility Betterment performed as part of a Utility Adjustment, whether by Non-Profit Entity or by the Utility Owner, shall be subject to the same standards and requirements as if it were a necessary Utility Adjustment. Under no circumstances shall Non-Profit Entity proceed with any Utility Betterment that is incompatible with the Project or is not in compliance with applicable Law, the Regulatory Approvals or the Contract Documents, including the Contract Deadlines. Under no circumstances will Non-Profit Entity be entitled to any additional compensation or time extension under the Contract Documents as the result of any Utility Betterment, whether performed by Non-Profit Entity or by the Utility Owner. Non-Profit Entity shall provide City with such information, analyses, and certificates as City may request in order to determine compliance with this Section 7.6.11 (Utility Betterments).

7.6.12 Failure of Utility Owners to Cooperate

7.6.12.1 Non-Profit Entity shall make diligent efforts to obtain the cooperation of each Utility Owner as necessary for the Project. Non-Profit Entity is responsible for verifying the progress of

each Utility Owner's work. Non-Profit Entity shall provide Notice to City within five days after the occurrence of any of the following: (a) Non-Profit Entity reasonably believes for any reason that any Utility Owner would not undertake or permit Utility Work in a manner consistent with the timely completion of the Project or in accordance with Law, the Regulatory Approvals or the Contract Documents, (b) Non-Profit Entity becomes aware that any Utility Owner is not cooperating in a timely manner to agree upon work to be performed or approvals to be obtained or to provide agreed-upon work or approvals in accordance with the Contract Documents, or (c) any other dispute arises between Non-Profit Entity and a Utility Owner with respect to the Project, despite Non-Profit Entity's diligent efforts to obtain such Utility Owner's cooperation or otherwise resolve such dispute. Such Notice may include a request that City assist in resolving the dispute or in otherwise obtaining the Utility Owner's timely cooperation. Non-Profit Entity shall provide City with such information as City reasonably requests regarding the Utility Owner's failure to cooperate and the effect of any resulting delay on the Project Schedule. After delivering Notice to City, Non-Profit Entity shall continue to use diligent efforts to pursue the Utility Owner's cooperation.

7.6.12.2 If Non-Profit Entity requests assistance of City pursuant to Section 7.6.12.1, the following provisions apply:

(a) Non-Profit Entity shall provide evidence satisfactory to City, in its good faith determination, that (i) the subject Utility Work is necessary, (ii) if the time for Utility Owners' response time exceeds expectations, Non-Profit Entity proactively pursued actions to advance progress, (iii) Non-Profit Entity has made, and continues to make, diligent efforts to obtain the Utility Owner's cooperation and commenced coordination at the earliest time, including during the PDA Term (including submitting and actively pursuing Utility Adjustment applications to Utility Owners with respect to impacted Utilities, taking into account the Project Schedule), (iv) Non-Profit Entity has remained responsive to Utility Owners' comments in a timely manner; (v) the representations and warranties set forth in Section 7.6.8.1 and Section 7.6.16.1, as applicable, were true and accurate as of the Effective Date; and (vi) the Utility Owner is not cooperating (clauses (a)(i) through (vi) above are referred to herein as the "Conditions to Assistance").

(b) Following receipt by City of satisfactory evidence, City shall take such reasonable steps as City may reasonably determine to obtain the cooperation of the Utility Owner or resolve the dispute; provided, however, City shall have no obligation to prosecute eminent domain or other legal proceedings, or to exercise any other legal remedy available to it under Law or existing contract, unless City elects to do so in its sole discretion. City may, at its sole discretion, participate in the resolution of any dispute between Non-Profit Entity and a Utility Owner, whether or not requested to do so by Non-Profit Entity.

(c) Without limiting City's obligations under clause (b) above or the terms of this Agreement relating to a Major Utility Adjustment Delay, if City holds contractual rights that might be used to enforce the Utility Owner's obligation to cooperate, City shall have the right not to exercise those rights. The decision not to exercise those rights shall be in the sole discretion of City.

(d) Without limiting the other provisions of this Section 7.6.12, if Principal Project Company establishes that it has a good faith claim based solely on wrongful

actions or inactions of a Utility Owner pertaining to a Utility within the Project Site or otherwise affected by the Project, upon receipt of Notice from Principal Project Company, City may, in its sole discretion, assign to Principal Project Company City's rights of recovery, as such may exist, under any existing agreement between City and the Utility Owner or under any utility permit.

7.6.12.3 Any assistance provided by City shall not relieve Non-Profit Entity of its sole and primary responsibility for the satisfactory compliance with its obligations under the Contract Documents and its obligations with respect to timely completion of all necessary Utility Adjustments.

7.6.13 Major Utility Adjustment Delays

7.6.13.1 The term "Major Utility Adjustment Delay" shall mean:

(a) Any material delay by a Utility Owner in connection with a Major Utility Adjustment beyond the later of the date set forth in the approved Project Schedule and any agreement in writing between NPE or NPE-Related Entities and any Utility Owner, following receipt by City of proper Notice pursuant to Section 7.6.12.1 that causes a Critical Path delay to the Work, provided that (i) all of the "Conditions to Assistance" described in Section 7.6.12.2 have been satisfied; (ii) Non-Profit Entity shall actively and diligently cooperate with the Utility Owner and pursue the Major Utility Adjustment and Utility Work at all times; and (iii), if applicable, Non-Profit Entity shall respond to, and address, Utility Owner comments, including through resubmittals of design, data, construction documents and revised submittals no later than the earlier of (x) 7 days after delivery by the Utility Owner of comments, questions and/or issues lists; and (y) the date for response identified by Utility Owner in Utility Owner's comments, questions and/or issues lists. Delays to Major Utility Adjustments resulting in whole or in part from any failure by Non-Profit Entity to satisfy the conditions set forth in clauses (i)-(iii) of this Section or any act or omission of any NPE-Related Entity or any NPE Fault shall not be counted towards Major Utility Adjustment Delay.

(b) Notwithstanding the foregoing, the term "Major Utility Adjustment Delay" also does not include and is not intended to address (i) City Changes relating to Utilities, the impact of which will be addressed in the Change Order, (ii) any Utility Adjustments other than Major Utility Adjustments beyond the Major Utility Adjustment Deadline; (iii) additional work for a Major Utility Adjustment associated with a Project design change as described in Section 7.6.10 (Changes in Design); (iv) any event described in this Section 7.6.13.1 which results from or arises out of the actions or omissions of any NPE-Related Entity or any NPE Fault; (v) any delay or impact relating to or arising out of the failure by any NPE-Related Entity to undertake the coordination activities with Utilities contemplated by the Predevelopment Agreement or based on the results of a Reasonable Investigation (even if such delay otherwise would have been considered a Major Utility Adjustment Delay but for such failure) or (vi) PG&E Offsite Utility Delay (which is separately addressed in Section 7.6.17 below). Non-Profit Entity shall not rely upon any proposed schedules, durations or deadlines, if any, included in the Reference Documents with respect to Utility Adjustments, and Non-Profit Entity may not base any Claims

for a time extension or additional compensation upon such proposed schedules, durations, and deadlines.

7.6.13.2 Subject to the limitations and restrictions in this Section 7.6.13 (Major Utility Adjustment Delays) and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), relief for a Major Utility Adjustment Delay shall be in accordance with and subject to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).

7.6.13.3 Non-Profit Entity shall not be entitled to extension of any Contract Deadline or other relief for a Major Utility Adjustment Delay pursuant to Section 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events). or otherwise unless all of the following conditions are satisfied :

(a) The Utility Adjustment is solely associated with a Major Utility Adjustment Delay;

(b) Non-Profit Entity has timely satisfied the "Conditions to Assistance" requirements described in Section 7.6.12.2;

(c) Non-Profit Entity has provided a reasonable Utility Adjustment plan for the Major Utility Adjustment to the Utility Owner that has been approved by City;

(d) Non-Profit Entity has provided evidence satisfactory to City that (i) Non-Profit Entity has prioritized the Major Utility Adjustment early in the Project Schedule; (ii) Non-Profit Entity took advantage of Float available early in the Project Schedule for coordination activities with respect to the Utility(ies) to which such Major Utility Adjustment Delay relates, (iii) Non-Profit Entity has fulfilled its obligation to coordinate with the Utility Owner to prevent or reduce such delays, and (iv) Non-Profit Entity has otherwise made diligent efforts to obtain timely performance by the Utility Owner but has been unable to obtain such timely performance;

(e) There exist no circumstances which have delayed or are delaying the affected Major Utility Adjustment(s), other than those that fit within the definition of a Major Utility Adjustment Delay or another Compensable Delay Event; and

(f) The delay is otherwise allowable under Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events).

7.6.13.4 Non-Profit Entity shall undertake reasonable efforts to obtain agreements in writing between NPE or NPE-Related Entities and Utility Owners relating to Major Utility Adjustments, but shall not be responsible for failing to obtain such an agreement following the exercise of such reasonable efforts.

7.6.14 Utility-Related Claims; Additional Restrictions on Change Orders Relating to Utility Adjustments

In addition to all of the other requirements and limitations contained in this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay), and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), Non-Profit Entity's entitlement to any relief relating to Utility Adjustments shall be

subject to the restrictions and limitations set forth in this Section 7.6.14 (Utility-Related Claims; Additional Restrictions on Change Orders Relating to Utility Adjustments).

7.6.14.1 Non-Profit Entity shall provide documentation satisfactory to City showing that the required analysis was performed and an appropriate determination made regarding the need for the Utility Adjustment, and shall also bear the burden of proving that the amount of any additional costs and/or time incurred by Non-Profit Entity are both necessary and reasonable.

7.6.14.2 To the extent compensation for Extra Work Costs is permitted under this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay), any relief increasing compensation to Non-Profit Entity pursuant to this Section 7.6 (Utilities, Utility Adjustments, Major Utility Adjustment Delay and PG&E Offsite Utility Delay) shall include only the Extra Work Costs arising from the circumstances giving rise to such relief, i.e., the amount payable shall take into account the costs that would have been incurred absent such circumstances and a credit shall be allowed for any avoided costs.

7.6.14.3 Non-Profit Entity shall not be entitled to any increase in compensation for any costs of coordinating with Utility Owners.

7.6.15 FTA Requirements

The Project is funded in part with funds made available by the Federal Transit Administration. In carrying out the Utility Adjustments, Non-Profit Entity shall comply with all Laws as necessary for Utility Adjustments to be eligible for reimbursement from such funding.

7.6.16 Claims for Unidentified Offsite Utilities

7.6.16.1 On or before 135 days after Financial Close, Non-Profit Entity shall undertake, and prepare and submit to City for review, the Offsite Utility Information.

7.6.16.2 Subject to the limitations and restrictions in this Section 7.6.16 (Claims for Unidentified Offsite Utilities) and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), relief for Unidentified Early Offsite Utility Delay and Unidentified Late Offsite Utility Delay (as applicable) shall be in accordance with and subject to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).

7.6.16.3 Non-Profit Entity shall not be entitled to any relief pursuant to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events) for a Unidentified Early Offsite Delay Events or Unidentified Late Offsite Utility Delay(as applicable) or otherwise for any of the following:

(a) Prior to the 135-day period in which the Offsite Utility Information must be submitted to City, increased costs of the Offsite Utility Work attributable to Unidentified Offsite Utilities and Non-Dig Alert Utilities, to the extent that the existence of the facility was identified in the Utility Information, known to Non-Profit Entity as of the Setting Date or could have been inferred from an Offsite Utilities Reasonable Investigation or otherwise from the presence of other facilities, such as buildings, meters, junction boxes, manholes or identifying markers, visible during a surface inspection of the area conducted prior to the Effective Date;

(b) Following the 135-day period in which the Offsite Utility Information must be submitted to City, increased costs of the Offsite Utility Work attributable to Unidentified Offsite Utilities and Non-Dig Alert Utilities, to the extent that the existence of the facility was identified in the Utility Information or Offsite Utility Information, known to Non-Profit Entity as of the expiration of such 135-day period or could have been inferred from an Offsite Utilities Reasonable Investigation or otherwise from the presence of other facilities, such as buildings, meters, junction boxes, manholes or identifying markers, visible during a surface inspection of the area conducted prior to the expiration of the 135-day period;

(c) Increased costs of the Offsite Utility Work attributable to Unidentified Offsite Utilities and Non-Dig Alert Utilities to the extent that Non-Profit Entity failed to provide timely Notice in accordance with Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events);

(d) Increased costs of the Work attributable to Unidentified Offsite Utilities and Non-Dig Alert Utilities that can be Protected in Place or removed rather than physically relocated;

(e) Any additional costs incurred by Utility Owners (that are not reimbursable or payable to the Utility Owner) as a result of the Unidentified Offsite Utility;

(f) Increased costs of the Offsite Utility Work attributable to all other Utilities that are not Unidentified Offsite Utilities or Non-Dig Alert Utilities; and

(g) Delay Costs, extended overhead and delay and disruption damages, except as specifically set forth in the Contract Documents.

7.6.17 PG&E Offsite Utility Delays

7.6.17.1 The term “PG&E Offsite Utility Delay” shall mean:

(a) Any material delay by PG&E in connection with the Offsite Utility Work to be undertaken by PG&E beyond the later of the date set forth in the approved Project Schedule and any agreement in writing between NPE or NPE-Related Entities and PG&E following receipt by City of proper Notice pursuant to Section 7.6.12.1 that causes a Critical Path delay to the Work, provided that (i) all of the “Conditions to Assistance” described in Section 7.6.12.2 have been satisfied; (ii) Non-Profit Entity shall actively and diligently cooperate with PG&E and pursue the Offsite Utility Work at all times; and (iii), if applicable, Non-Profit Entity shall respond to, and address, PG&E comments, including through resubmittals of design, data, construction documents and revised submittals no later than the earlier of (x) 7 days after delivery by PG&E of comments, questions and/or issues lists; and (y) the date for response identified by PG&E in PG&E’s comments, questions and/or issues lists. Delays to Offsite Utility Work undertaken by PG&E resulting in whole or in part from any failure by Non-Profit Entity to satisfy the conditions set forth in clauses (i)-(iii) of this Section or any act or omission of any NPE-Related Entity or any NPE Fault shall not be counted towards PG&E Offsite Utility Delay.

7.6.17.2 Notwithstanding the foregoing, the term "PG&E Offsite Utility Delay" also does not include and is not intended to address (i) City Changes relating to Utilities, the impact of which will be addressed in the Change Order, (ii) any event described in this Section 7.6.17.1 which results from or arises out of the actions or omissions of any NPE-Related Entity or any NPE Fault; (iii) any Utility Work other than Offsite Utility Work to be undertaken by PG&E; or (iv) any delay or impact relating to or arising out of the failure by any NPE-Related Entity to undertake the coordination activities with PG&E based on the results of an Offsite Utility Reasonable Investigation (even if such delay otherwise would have been considered PG&E Offsite Utility Delay but for such failure). Subject to the limitations and restrictions in this Section 7.6.17.1 (PG&E Offsite Utility Delays) and Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events), relief for PG&E Offsite Utility Delay shall be in accordance with Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events).

7.6.17.3 Non-Profit Entity shall not be entitled to extension of any Contract Deadline or other relief for a PG&E Offsite Utility Delay pursuant to Sections 14.1.2 (Extension of Deadlines for Delay Events) through 14.1.4 (Costs Payable for Compensable Delay Events) or otherwise unless all of the following conditions are satisfied (in addition to satisfaction of any conditions specified in Section 7.16.17.1):

(a) The Offsite Utility Work is solely associated with work undertaken by PG&E;

(b) Non-Profit Entity has timely satisfied the “Conditions to Assistance” requirements described in Section 7.6.12.2;

(c) Non-Profit Entity has provided a reasonable plan to coordinate and engage with PG&E that has been approved by City;

(d) Non-Profit Entity has provided evidence satisfactory to City that (i) Non-Profit Entity has prioritized the Offsite Utility Work to be undertaken by PG&E early in the Project Schedule; (ii) Non-Profit Entity took advantage of Float available early in the Project Schedule for coordination and engagement activities with respect to the Offsite Utility Work to be undertaken by PG&E to which such PG&E Offsite Utility Delay relates, (iii) Non-Profit Entity has fulfilled its obligation to coordinate and engage with PG&E to prevent or reduce such delays, and (iv) Non-Profit Entity has otherwise made diligent efforts to obtain timely performance by PG&E but has been unable to obtain such timely performance;

(e) There exist no circumstances which have delayed or are delaying the affected Offsite Utility Work to be undertaken by PG&E, other than those that fit within the definition of a PG&E Offsite Utility Delay or another Compensable Delay Event; and

(f) The delay is otherwise allowable under Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events).

7.6.17.4 Non-Profit Entity shall undertake reasonable efforts to obtain agreements in writing between NPE or NPE-Related Entities and PG&E relating to Offsite Utility Work, but shall not be responsible for failing to obtain such an agreement following the exercise of such reasonable efforts.

7.7 Hazardous Materials Management; Risk Allocation

7.7.1 Hazardous Materials Management

7.7.1.1 Except as otherwise provided in this Section 7.7.1 (Hazardous Materials Management), Non-Profit Entity shall, as part of the Work, perform, or cause to be performed, all Hazardous Materials Management required in connection with the Project in accordance with applicable Law, Regulatory Approvals, the approved Environmental Protection Program, and all applicable provisions of the Contract Documents.

7.7.1.2 Non-Profit Entity shall have the following duties to identify, avoid, minimize and mitigate adverse monetary and non-monetary impacts to the Project and to City relating to Hazardous Materials:

(a) Non-Profit Entity shall adopt design and construction techniques for the Project, using Good Industry Practice, that avoid, to the extent reasonably practicable, the need for Hazardous Materials Management;

(b) when performing Hazardous Materials Management, Non-Profit Entity shall use Good Industry Practice, including design modifications and construction techniques, to minimize costs (including long-term costs) of Hazardous Materials Management; and

(c) Non-Profit Entity shall use appropriately trained personnel to conduct Hazardous Materials Management activities.

7.7.1.3 Non-Profit Entity shall promptly provide Notice to City of any Hazardous Materials encountered in connection with the Project, the Project Site or the Work that require (a) reporting or Notice to any Governmental Entity and/or (b) taking any response action (e.g., evaluating and addressing the circumstances and location of the Hazardous Materials) under applicable Law, Regulatory Approvals, the approved Environmental Protection Program and the Contract Documents, as applicable. A Notice provided under this Section 7.7.1.3 shall advise City of any obligation to provide Notice to Governmental Entities under applicable Law. Non-Profit Entity shall make all such reports, or deliver all such Notices, to any Governmental Entity with respect to Hazardous Materials encountered in connection with the Project, the Project Site or the Work, providing concurrent Notice and copies of such reports and Notices to City.

7.7.1.4 Procedures for Hazardous Materials Management

(a) Non-Profit Entity shall manage, treat, handle, store, remediate, remove, transport (where applicable), document and dispose of all Hazardous Materials and perform all other aspects of Hazardous Materials Management as appropriate, in accordance with applicable Law, Regulatory Approvals, the approved plans required to be provided under Section 01 35 44 of Division 10 of the Technical Requirements, and this Agreement.

(b) Non-Profit Entity is prohibited from starting Hazardous Material removal Work without a City-approved Hazardous Materials Management Plan as described in Section 02 80 13 of Division 10 of the Technical Requirements and the Hazardous Materials submittals required thereunder with respect to the

specific instance of Hazardous Materials and Hazardous Materials removal work. Non-Profit Entity shall not conduct any sampling or analysis of suspected building materials without prior permission from the City. The time utilized by Non-Profit Entity to undertake and obtain City approval of such Hazardous Materials Management Plan and Hazardous Materials submittals regarding any Known or Suspected Hazardous Materials or any Hazardous Materials caused, contributed, or, once discovered, exacerbated, by any NPE-Related Entity shall not be eligible for relief or time extension. The costs incurred by Non-Profit Entity to undertake and obtain City approval of such Hazardous Materials Management Plan and Hazardous Materials submittals regarding any Known or Suspected Hazardous Materials or any Hazardous Materials caused, contributed, or, once discovered, exacerbated, by any NPE-Related Entity shall not be eligible for compensation under this Agreement.

(c) Except where Non-Profit Entity is required to take immediate action under the Contract Documents or applicable Law, Non-Profit Entity shall afford City the opportunity to inspect sites containing Hazardous Materials and to consult with Non-Profit Entity about the recommended approach before any Hazardous Materials Management or other action is taken which would inhibit City's ability to ascertain the nature and extent of the contamination.

(d) Where management, treatment, handling, storage, remediation, transport, documentation or disposing of Hazardous Materials constitutes a Hazardous Materials Event, Section 14.1.5 (Additional Limits Relating to Hazardous Materials Event During D&C Period) shall apply regarding Non-Profit Entity's rights to potential compensation and extension of any Contract Deadline.

7.7.1.5 If Non-Profit Entity fails to undertake the Hazardous Materials Management required under this Section 7.7.1 (Hazardous Materials Management) within a reasonable time after discovery of Hazardous Materials, taking into consideration the nature and extent of the contamination and action required and the potential impact upon Non-Profit Entity's schedule for use of and operations on the Project Site, City may provide Notice to Non-Profit Entity that City will undertake the Hazardous Materials Management. If Non-Profit Entity fails to remedy the failure within 3 Business Days following provision of a Notice under this Section 7.7.1.5:

(a) City may itself undertake Hazardous Materials Management actions or procure a contractor to perform such work, in which case City will do so in accordance with all applicable Environmental Laws;

(b) Non-Profit Entity shall reimburse City on a current basis, within 10 days of request, for Recoverable Costs from fines, penalties or other assessments against City or the Project by Governmental Entities due to Non-Profit Entity's delay or failure to undertake the Hazardous Materials Management), so long as City has performed in accordance with Section 7.7.1.5(a); and

(c) City shall have no liability or responsibility to Non-Profit Entity arising out of, relating to or resulting from City's Hazardous Materials Management actions and such actions shall not constitute a Delay Event or other basis for a Claim.

7.7.1.6 In the event of an emergency constituting an immediate hazard to health or safety of Building Occupants or City property due to Non-Profit Entity's failure to undertake the Hazardous Materials Management required under this Section 7.7.1 (Hazardous Materials Management), City may undertake, at Non-Profit Entity's sole cost and expense and without prior Notice, all work necessary to correct such hazardous condition(s).

7.7.2 Additional Hazardous Materials Obligations of Non-Profit Entity

7.7.2.1 Non-Profit Entity shall avoid exacerbating Hazardous Materials (including Pre-Existing Hazardous Materials as well as new Releases) in, on, under or migrating from the Project Site. For purposes of determining liability, as between City and Non-Profit Entity, under Sections 7.7.1.4(a) and 7.7.1.4(c), Non-Profit Entity shall only be liable for exacerbation of Hazardous Materials arising out of or relating to NPE Fault.

7.7.2.2 Non-Profit Entity shall take all reasonable efforts to ensure that no act or omission of any NPE-Related Entity will result in an unlawful Release of Hazardous Materials to or into wastewater, storm or sanitary sewer systems, surface water, air, soils or groundwater in, on, under or migrating from the Project Site.

7.7.3 Hazardous Materials Generator Responsibilities

7.7.3.1 As between Non-Profit Entity and City, City shall be considered the generator and assume generator responsibility for Hazardous Materials, other than any NPE Release, and City shall not assert that Non-Profit Entity has legal responsibility for such Hazardous Materials (other than a NPE Release) as a generator. City has approval rights of Non-Profit Entity's selection of the destination facility to which Hazardous Materials, other than any NPE Release, will be transported.

7.7.3.2 With regard to Hazardous Materials other than any NPE Release, City shall comply with the applicable standards for generators including those found at 40 CFR Part 262, including the responsibility to sign manifests and other waste tracking records for the transport of Hazardous Materials.

7.7.3.3 Sections 7.7.3.1 and 7.7.3.2 shall not preclude or limit any rights, remedies or defenses that City or Non-Profit Entity may have against any Governmental Entity or other third parties, including prior owners, lessees, and licensees nor shall Sections 7.7.3.1 and 7.7.3.2 be interpreted as an admission of City's liability as to any Governmental Entity or other third parties, or otherwise preclude City from asserting to any Governmental Entity or other third parties that another entity, other than Non-Profit Entity or City, is the generator of any Hazardous Materials. Notwithstanding the foregoing, Non-Profit Entity (and not City) shall be considered the generator with respect to any NPE Release.

7.8 Substantial Completion

7.8.1.1 The City and Non-Profit Entity mutually agree that time is of the essence with respect to the dates and times specified in this Agreement.

7.8.1.2 Non-Profit Entity shall achieve Substantial Completion on or before the Substantial Completion Deadline. Failure to achieve Substantial Completion by the Long Stop Date is a NPE Default under Section 16.1.1(c).

7.8.1.3 The conditions to Substantial Completion are set forth in Exhibit 15C (Conditions to Substantial Completion).

7.8.1.4 Approximately six calendar months before the date on which Non-Profit Entity expects to achieve Substantial Completion, Non-Profit Entity shall provide to City its anticipated schedule to achieve Substantial Completion. Non-Profit Entity shall promptly advise City if at any time Non-Profit Entity determines that its anticipated schedule to achieve Substantial Completion will change. Non-Profit Entity shall provide an updated schedule to City 21 days before the date Non-Profit Entity expects to achieve Substantial Completion. Non-Profit Entity's schedule shall include, at a minimum, dates when Non-Profit Entity will submit all remaining documentation and evidence required by Exhibit 15C (Conditions to Substantial Completion) and the Technical Requirements with respect to Substantial Completion.

7.8.1.5 When Non-Profit Entity determines that it has satisfied all conditions to Substantial Completion, it shall deliver to City a request for Certificate of Substantial Completion, in a form reasonably acceptable to City, stating the date that Non-Profit Entity determined it satisfied all conditions in Exhibit 15C (Conditions to Substantial Completion). Together with the request for Certificate of Substantial Completion, Non-Profit Entity shall submit a Punch List of items to be completed as a condition precedent to achievement Final Acceptance, obtain approval from Utility Owners and Authorities Having Jurisdiction of any Punch List items affecting Utilities and elements subject to the jurisdiction of an Authority Having Jurisdiction and obtain City's acceptance of the Punch List, which acceptance shall not be unreasonably withheld or delayed. The Punch List shall not include any items that adversely affect the safety, use or operability of the Project.

7.8.1.6 During the 14-day period following the receipt of such request for Certificate of Substantial Completion:

(a) Non-Profit Entity and City shall meet and confer to facilitate City's determination of whether Non-Profit Entity has met the conditions for Substantial Completion; and

(b) City will conduct an inspection of the Project, review the applicable Final Design Documents, Construction Documents and other Submittals and conduct such other investigations as may be necessary to evaluate whether Substantial Completion has been achieved.

7.8.1.7 As soon as reasonably practicable and, in any event, no later than 14 days after receipt of Non-Profit Entity's Notice under Section 7.8.1.5, City's Authorized Representative shall inspect, in conjunction with Non-Profit Entity, the D&C Work and City's Authorized Representative shall either:

(a) If the conditions to Substantial Completion set forth in this Agreement, including in Exhibit 15(C) (Conditions to Substantial Completion) have been achieved, issue the Certificate of Substantial Completion to Non-Profit Entity within 7 days after the inspection:

(i) certifying that Substantial Completion has taken place;

(ii) stating the Substantial Completion Date (consistent with the terms of Section 7.8.1.5);

(iii) listing any Punch List items which, in its opinion, remains to be performed; and

(iv) setting out reasonable details of the work remaining to be performed to achieve Final Acceptance; or

(b) if the conditions to Substantial Completion set forth in this Agreement, including in Exhibit 15(C) (Conditions to Substantial Completion), have, in City's determination, not been achieved, issue a Notice to Non-Profit Entity within 7 days after the inspection:

(i) listing, in reasonable detail, the work and conditions which, in its determination, remain(s) to be performed or satisfied to achieve Substantial Completion; or

(ii) stating in its reasonable determination, that Substantial Completion is so far from being achieved that it is not practicable to provide a list of the type referred to in Section 7.8.1.7(b)(i), but including, in reasonable detail, a description of the reasons for such determination.

7.8.1.8 Non-Profit Entity shall give Notice to City's Authorized Representative when Non-Profit Entity considers that the work listed in a Notice issued by City's Authorized Representative under Section 7.8.1.7(b)(i) has been completed.

7.8.1.9 Sections 7.8.1.4 through 7.8.1.8 will apply in respect of any new Non-Profit Entity Notice under Section 7.8.1.8 in the same way as if it were the original Notice given under Section 7.8.1.4.

7.8.1.10 City's Authorized Representative's reasonable determination as to whether the conditions to Substantial Completion set forth in this Agreement, including in Exhibit 15(C) (Conditions to Substantial Completion), have been achieved will not be restricted by any Notice, list or opinion which City previously provided to Non-Profit Entity under Section 7.8.1.7(b)(i).

7.8.1.11 In the event that the Non-Profit Entity and City disagree as to whether or not the conditions to Substantial Completion set forth in this Agreement, including in Exhibit 15(C) (Conditions to Substantial Completion), have been achieved, the Substantial Completion Date, the list of work remaining to be performed or the list of or estimated cost to perform Punch List items, City and Non-Profit Entity will meet to resolve such dispute, failing which such dispute shall be resolved in accordance with Article 18 (Partnering; Contract Dispute Procedures) .

7.8.1.12 Notwithstanding any other provision of this Agreement, City is under no obligation to certify Substantial Completion or commence the payment of Availability Payments prior to the original Substantial Completion Deadline, regardless of whether Substantial Completion has been achieved prior to the original Substantial Completion Deadline.

7.9 Final Acceptance

7.9.1.1 Promptly after achieving Substantial Completion, Non-Profit Entity shall perform all remaining D&C Work, including expeditiously and diligently correcting all of the Punch List items specified pursuant to Section 7.8.1.7(a)(iii), to achieve Final Acceptance by the Final Acceptance Deadline.

7.9.1.2 The conditions to Final Acceptance are set forth in Exhibit 15D (Conditions to Final Acceptance).

7.9.1.3 When Non-Profit Entity determines that it has satisfied all conditions to Final Acceptance, it shall provide a certification to City, in a form reasonably acceptable to City, stating the date that Non-Profit Entity determined that it satisfied all the conditions in Exhibit 15D (Conditions to Final Acceptance).

7.9.1.4 Within 21 days after receipt of Non-Profit Entity's Notice under Section 7.9.1.3, City's Authorized Representative shall inspect, in conjunction with Non-Profit Entity, the D&C Work and shall either:

(a) if City's Authorized Representative agrees that Final Acceptance has been achieved, issue a Certificate of Final Acceptance to Non-Profit Entity within 15 days after the inspection certifying that Final Acceptance has taken place and the Final Acceptance Date; or

(b) if in City's Authorized Representative's opinion, Final Acceptance has not been achieved, issue a Notice to Non-Profit Entity within 15 days after the inspection listing the work it believes remains to be performed to achieve Final Acceptance.

7.9.1.5 Without limiting Non-Profit Entity's other obligations under this Agreement, immediately upon receipt of a Notice under Section 7.9.1.4(b), Non-Profit Entity shall expeditiously and diligently progress performance of the work specified in the Notice.

7.9.1.6 Non-Profit Entity shall give Notice to City's Authorized Representative when Non-Profit Entity considers that the work listed in City's Authorized Representative's Notice under Section 7.9.1.4(b) has been completed.

7.9.1.7 Sections 7.9.1.4 through 7.9.1.6 will apply in respect of any new Non-Profit Entity Notice under Section 7.9.1.6 in the same way as if it were the original Notice under Section 7.9.1.4

7.9.1.8 City's Authorized Representative's opinion as to whether Final Acceptance has been achieved will not be restricted by any:

(a) Certificate of Substantial Completion, Notice, list or opinion already provided under this Agreement; or

(b) warranty provided by any NPE-Related Entity.

7.9.1.9 In the event that City and Non-Profit Entity disagree as to whether or not Final Acceptance has been achieved or the Final Acceptance Date, City and Non-Profit Entity will meet to resolve such dispute, failing which such dispute shall be resolved in accordance with Article 18 (Partnering; Contract Dispute Procedures) .

7.10 Responsibility for Loss or Damage

7.10.1 The D&C Work includes having full charge and care of the Project Site and the D&C Work (including bearing risk of loss and damage to the D&C Work and Project Site, subject to the terms of the Contract Documents, through Substantial Completion (or in the case of any Punch List Items, Final Acceptance), except to the extent that City or Third Parties have accepted elements of the D&C Work and expressly assumed responsibility for maintenance of such elements. For certainty, following Substantial Completion, City shall have full charge and care of the Project Site and the Infrastructure Facility and shall bear all risk of loss and damage to the Project Site and Infrastructure Facility except (a) with respect to Punch List Items, Non-Profit Entity shall bear the risk of loss and damage to the D&C Work and the Project Site with respect to such items until the Final Acceptance Date, and (b) with respect to Warranty Work, Non-Profit Entity shall bear responsibility for Defects in the relevant Work for the duration of the Warranty Period.

7.10.2 Non-Profit Entity shall take every reasonable precaution against Loss or damage to any part of the Project from any cause, whether arising from the performance or nonperformance of the D&C Work.

7.10.3 For so long as Non-Profit Entity bears the risk of loss and damage to D&C Work under Section 7.10.1, Non-Profit Entity shall repair, restore and replace Losses or damages to such D&C Work occasioned by any cause, subject to potential relief in accordance with, and subject to the terms of the Contract Documents. Non-Profit Entity shall ensure that such work is performed in accordance with the Contract Documents and applicable Law.

7.10.4 Non-Profit Entity shall repair, restore and replace any Losses or damages to City property other than the D&C Work caused by any NPE-Related Entity.

7.11 Nonconforming Work

7.11.1 Obligation to Replace Nonconforming Work

Non-Profit Entity shall perform all Work in conformity with the Contract Documents. If Non-Profit Entity has not performed the Work in conformity with the Contract Documents, then, in addition to any other remedies available to City, City may direct Non-Profit Entity to, and Non-Profit Entity shall, remove and replace or otherwise remedy the Nonconforming Work. Non-Profit Entity shall not be entitled to make a Claim in connection with such D&C Work except as it relates to a dispute regarding whether Non-Profit Entity had performed the D&C Work in conformity with the Contract Documents.

7.11.2 Remedial Plan for Nonconforming Work

7.11.2.1 Promptly after Nonconforming Work is identified but no later than 10 Business Days after the earlier of (i) Notice from City to Non-Profit Entity; and (ii) Non-Profit Entity first obtains Actual Knowledge of such Nonconforming Work, Non-Profit Entity shall submit a remedial plan

to City, for review and approval, describing the error or Defect giving rise to the Nonconforming Work and describing Non-Profit Entity's planned remedial action. Such proposal shall address Infrastructure Facility integrity, aesthetics, operational impact on City including MOT, impact on the public, Building Occupants and any applicable Governmental Entities, maintainability, the effect on the Project Schedule and other relevant issues.

7.11.2.2 If City determines that a proposed plan of correction may infringe upon Infrastructure Facility integrity, operations or maintainability, then City may elect to perform a technical assessment of Non-Profit Entity's proposal. City shall provide Notice to Non-Profit Entity promptly upon determining that an assessment is required, and shall take reasonable efforts to expedite the assessment. Should City elect to perform any such technical assessment, (a) if so requested by City, Non-Profit Entity shall not proceed with the remedial plan until City has conducted its technical assessment and provided prior approval of the remedial plan and (b) Non-Profit Entity shall not be entitled to make any Claim in connection with the technical assessment or reasonable delay in the remedial plan pending City's approval.

7.11.3 City's Remedies

7.11.3.1 City shall have the right and authority to cause Nonconforming Work to be removed, replaced or otherwise remedied and to withhold or deduct the costs from Milestone Payment 2 in accordance with this Agreement, or any other payment due and payable to Non-Profit Entity under the Contract Documents on or before the Substantial Completion Date, upon (a) any failure of Non-Profit Entity to provide a proposed remedial plan as described in Section 7.11.2.1 and obtain City's approval thereof, or (b) any failure of Non-Profit Entity to comply with City's direction under this Agreement relating to any safety issue, including Safety Compliance Orders. Following the Substantial Completion Date, City may require Non-Profit Entity to pay City amounts owing under this Section 7.11.3.1, collect such amounts from the Performance Bond and/or exercise any such rights and remedies set forth in Section 11.6.3.

7.11.3.2 In addition to the right to cause the removal, replacement or remedy of the Nonconforming Work, at the request of Non-Profit Entity or upon its failure to remove, replace or otherwise remedy the Nonconforming Work within the timelines set forth in this Agreement, City may, in its sole discretion, accept such Nonconforming Work and receive reimbursement in an amount equal to the greater of: (a) the amount deemed appropriate by City (acting in good faith) to provide compensation for future impacts, maintenance and/or other costs relating to the Nonconforming Work, or (b) 100% of Non-Profit Entity's cost savings associated with its failure to perform the Work in accordance with the requirements of the Contract Documents.

7.12 Design and Construction of The HCC

Nothing contained in this Agreement shall obligate City to design and construct the HCC or utilize Non-Profit Entity or any NPE-Related Entity in connection with the design and construction of the HCC.

7.13 FF&E During D&C Period

7.13.1 Selection and Procurement of NPE-Furnished FF&E

7.13.1.1 Non-Profit Entity shall:

(a) update the Equipment List from time to time as appropriate to:

(i) reflect decisions made during the design development process;

(ii) ensure that like NPE-Furnished FF&E are grouped together;

(iii) address any comments provided by the City's Authorized Representative with respect to NPE-Furnished FF&E in accordance with Exhibit 11 (Submittals Review Process); and

(iv) ensure that Non-Profit Entity provides NPE-Furnished FF&E as necessary to satisfy the requirements of this Agreement;

(b) defer final selection of those items of NPE-Furnished FF&E which have high technical obsolescence risk to a time as close as reasonably possible to Substantial Completion, to better ensure that Non-Profit Entity will provide the most technically up to date items of such NPE-Furnished FF&E as of Substantial Completion; and

(c) procure and provide the NPE-Furnished FF&E, as it may be amended in accordance with this Section 7.13.1 (Selection and Procurement of NPE-Furnished FF&E) or as a result of a Change Order.

7.13.1.2 Unless necessary to meet its obligations under Section 7.13.1(a)(iv) or to carry out a Change Order, Non-Profit Entity shall not decrease the quantity or provide NPE-Furnished FF&E of a lesser quality (which may be determined based on attributes such as specification, brand, and place of manufacture) than an item identified in the Equipment List as of the Effective Date.

7.13.2 Selection of City-Furnished Equipment and Existing FF&E

7.13.2.1 City will select City-Furnished Equipment and identify Existing FF&E to be included in the Infrastructure Facility and update the Equipment List when reasonably required by Non-Profit Entity prior to Substantial Completion.

7.13.2.2 Non-Profit Entity shall defer as long as reasonably possible the time for City to select the City-Furnished Equipment and identify the Existing FF&E.

7.13.2.3 City will procure the City-Furnished Equipment identified in the Equipment List, as it may be amended as a result of a Change Order.

7.13.3 Installation of NPE-Furnished FF&E

Non-Profit Entity shall install or locate (as applicable depending on whether the FF&E is loose or fixed) all items of NPE-Furnished FF&E within the Project Site in accordance with the Release for Construction Documents and so that the Infrastructure Facility meets the requirements of the Principal Project Documents. If the Release for Construction Documents do not identify locations for the placement of loose items of NPE-Furnished FF&E, Non-Profit Entity shall locate such items in accordance with direction from City's Authorized Representative.

7.13.4 Installation of City-Furnished IT/Comms FF&E

7.13.4.1 Non-Profit Entity must provide City or its authorized representative continued and uninterrupted access to the IT/Comms Site for no less than 14 consecutive days prior to the commencement of commissioning and testing of the Infrastructure Facility ("**City Access Period**") for the City to install the City-Furnished IT/Comms FF&E. The access provided shall be sufficient for City to complete such installation and transition and shall comply with the conditions in Section 1.11.8f of Division 1 of the Technical Requirements.

7.13.4.2 Provided City complies with Project Site safety standards, Non-Profit Entity shall have no entitlement to make any claim against City for any delay to the Work caused by any access to or work undertaken by City under Section 7.13.5.1. Non-Profit Entity shall be entitled to relief in accordance with, and subject to the terms of the Contract Documents in connection with City's access or work undertaken by City under Section 7.13.5.1.

7.13.4.3 Subject to Section 7.13.4.4, City shall install City-IT/Comms FF&E to the IT/Comms Site during the City Access Period.

7.13.4.4 City will release Non-Profit Entity from all claims and liability in connection with the transfer of and installation of the City-IT/Comms FF&, except to the extent that Non-Profit Entity or a NPE-Related Entity (i) damages such FF&E or (ii) fails to comply with its obligations under this Agreement concerning such FF&E.

7.13.5 Commissioning of FF&E for Substantial Completion

7.13.5.1 Following installation of the NPE-Furnished FF&E and the City-Furnished IT/Comms FF&E, Non-Profit Entity shall finish completion testing and commissioning of the Infrastructure Facility, in accordance with the requirements of this Agreement and Division 6 of the Technical Requirements to achieve the requirements of Substantial Completion.

7.13.5.2 City will release Non-Profit Entity from all claims and liability in connection with the City-Furnished IT/Comms FF&E, to the extent that Non-Profit Entity is unable to successfully commission or undertake tests of such FF&E in accordance with the requirements of this Agreement and Division 06 of the Technical Requirements, except to the extent that the failure of such FF&E is caused by an act or omission of Non-Profit Entity or a NPE-Related Entity.

7.14 Move-In

7.14.1 General

7.14.1.1 As provided in Section 6.10 (Move-In Services) of Division 6 of the Technical Requirements , Non-Profit Entity shall plan, coordinate, manage and execute the physical Move-In of the Infrastructure Facility, including Existing FF&E and City Furnished Equipment (excluding City-Furnished IT/Comms FF&E), following Substantial Completion in accordance with the Move-In Plan and in coordination with the Move-In Subcommittee ("**Move-In**").

7.14.1.2 City will release Non-Profit Entity from all claims and liability in connection with the transfer of and installation of the City Furnished Equipment and Existing FF&E, except to the extent that Non-Profit Entity or a NPE-Related Entity (i) damages such FF&E or (ii) fails to comply with its obligations under this Agreement concerning such FF&E.

7.14.2 Move-In Subcommittee

7.14.2.1 The move-in subcommittee (the "**Move-In Subcommittee**") shall consist of three representatives of each Party (and PPC may serve on behalf of Non-Profit Entity). Members of the Move-In Subcommittee may invite, on prior notice to all members, such other advisors and consultants as they require from time to time to attend meetings and provide briefings to the Move-In Subcommittee.

7.14.2.2 The Move-In Subcommittee shall assist the Parties by promoting cooperative and effective communication with respect to matters related to the Move-In, including issues related to the move-in into the Infrastructure Facility, the City Access Periods and the transfer and installation of all Existing FF&E.

7.14.2.3 The primary role of the Move-In Subcommittee shall be to oversee and coordinate the Move-In in a timely and efficient manner and in accordance with the Project Schedule.

7.14.2.4 The Move-In Subcommittee shall be responsible for receiving and reviewing all matters related to the Move-In.

7.14.2.5 The members of the Move-In Subcommittee may adopt such procedures and practices for the conduct of the activities of the Move-In Subcommittee as they consider appropriate from time to time.

7.14.2.6 Unless otherwise agreed, the Move-In Subcommittee shall operate only until the Final Acceptance Date.

7.14.3 Move-In Resource

7.14.3.1 Non-Profit Entity shall, at least 24 months prior to Substantial Completion, prepare and submit to City a list of prospective candidates, including from existing resources, (each a "**Move-In Resource Candidate**") for appointment as Move-In Resource, each of which must have experience planning and executing staff and logistical transitions in projects of similar size, scope and complexity in the United States.

7.14.3.2 Subject to Section 24.17(c), Non-Profit Entity shall conduct a competitive bid process for the selection of the Move-In Resource from among the Move-In Resource Candidates, which bid process shall be completed by no later than 18 months prior to the Scheduled Substantial Completion Date. Non-Profit Entity shall consult with City in the design and implementation of such competitive bid process, including the development of the evaluation criteria, and shall accommodate any reasonable request of City with respect thereto. City may participate in the evaluation and selection of the successful Move-In Resource Candidate for appointment as Move-In Resource. City may, but is not required to, retain the Move-In Resource at City's cost to plan, coordinate, manage and execute the transition from the Existing Facilities to the Infrastructure Facility.

7.15 Coordination with HCC Project Company and HCC

City covenants and agrees in favor of Principal Project Company, and Non-Profit Entity acknowledges and agrees, that an HCC may be constructed prior to or following Substantial Completion; provided, however, that notwithstanding anything to the contrary in this Agreement,

no HCC shall be constructed by the City prior to Substantial Completion unless the D&C Contractor performs such HCC construction. Non-Profit Entity shall not interfere with the work of or cause any delay to any HCC Project Company that may be carrying out work within the Project Site or in the land adjoining or near the Project Site, including with respect to the HCC, and will allow them reasonable access to the Project Site, provided that Non-Profit Entity shall not be in breach of this Section 7.15 (Coordination with HCC Project Company and HCC) for any temporary interruption to the work of the HCC Project Company that (a) has been agreed to in advance in accordance with procedures agreed to by Non-Profit Entity, such contractor for the HCC and any relevant Third Party; or (b) is reasonably necessary in accordance with Law and Good Industry Practice to respond to emergencies creating an immediate and serious threat to public health, safety, security or the Environment.

7.16 Failure to Meet LEED Requirements

7.16.1 In the event that LEED BD+C Gold Rating, including the mandatory 12x EAc2 Optimize Energy Performance credits, is not obtained within 12 months after the Substantial Completion Date, other than as a sole and direct result of any affirmative act or omission of City or unless unreasonably withheld by USGBC or an equivalent body, Non-Profit Entity shall pay to City liquidated damages in the amount of $100,000. Non-Profit Entity shall submit all necessary documentation to achieve LEED BD+C Gold within 6 months after the Substantial Completion Date.

7.16.2 The Parties agree that such liquidated damages are not a penalty but represent a genuine and reasonable pre-estimate of the damages that the City will suffer as a result of the happening of the specified event and would be difficult or impossible to quantify upon the happening of the specified event. Such payment shall constitute full and final settlement of all damages that may be claimed by the City as a result of a failure by Project Company to achieve LEED BD+C Gold Rating and the minimum credit requirements and, for greater certainty, a failure by Project Co to achieve LEED BD+C Gold Rating shall not result in a NPE Default Event provided that such liquidated damages are promptly paid. The Parties agree that such liquidated damages shall be payable whether or not City incurs or mitigates its damages, and that City shall not have any obligation to mitigate any such damages.

ARTICLE 8. INTENTIONALLY OMITTED

ARTICLE 9. CONTRACTING AND LABOR PRACTICES

9.1 Disclosure of Contracts and Contractors

9.1.1 The provisions of this Section 9.1 (Disclosure of Contracts and Contractors) apply with respect to (a) Prime Contracts and lower tier Contracts entered into by Prime Contractors, excluding personal services contracts and contracts with Suppliers other than Key Contractors, and (b) Contracts with Affiliates, regardless of the nature or tier of the Contract.

9.1.2 With each Monthly Report required during the D&C Period, Non-Profit Entity shall provide City with a list of all Contracts, including, for each Contract, (a) the name of the Contractor (indicating the Contractor is an Affiliate, if applicable), (b) a summary of the scope of work, and (c) the dollar value. If the Contract includes Construction Work or Renewal Work, include assurance that the prevailing wage for labor, as specified in the Contract Documents, is paid for all labor performed under such Contract.

9.1.3 Non-Profit Entity shall allow City full access to all Contracts and records regarding Contracts and shall deliver to City, (a) within 10 days after execution, copies of all Key Contracts, guarantees thereof and amendments and supplements to Key Contracts and guarantees thereof, and (b) within 10 days after receipt of a request from City, copies of all other Contracts (including amendments and supplements) as may be requested.

9.2 Responsibility for Work, Contractors and Employees

9.2.1 Non-Profit Entity may enter into one or more Contracts with Contractors to perform portions of the Work.

9.2.2 The retention of Contractors by Non-Profit Entity does not relieve Non-Profit Entity of its responsibilities under this Agreement or for the quality of the Work or materials or services provided by it.

9.2.3 Each Contract shall include (a) terms sufficient to ensure both the acknowledgement of and compliance by the Contractor with the applicable requirements of the Contract Documents and to ensure that City has the ability to exercise its rights specified in the Contract Documents, (b) those terms that are specifically required by the Contract Documents to be included in such Contract, and (c) all applicable Laws.

9.2.4 Non-Profit Entity shall require each Contractor to familiarize itself with the requirements of any and all applicable Laws and the conditions of any required Regulatory Approvals.

9.2.5 Nothing in this Agreement will create any contractual relationship between City and any Contractor. No Contract entered into by or under Non-Profit Entity shall impose any obligation or liability upon any Indemnitee to any Contractor or any of its employees. Non-Profit Entity shall include, or cause to be included, a provision in all Contracts acknowledging the same.

9.2.6 Non-Profit Entity shall supervise and be fully responsible for any NPE Fault while performing Work under this Agreement or while on the Project Site, as though Non-Profit Entity directly employed all such individuals.

9.2.7 If City has reasonable cause to disapprove of an employee of any NPE-Related Entity, Non-Profit Entity shall remove such employee within 10 Business Days after receipt of written Notice from City of such disapproval.

9.3 Key Contracts; Contractor Qualifications

9.3.1 Key Contract Approvals, Amendments and Termination; Use of and Change in Key Contractors

9.3.1.1 Non-Profit Entity shall provide City, for City's review, comment and approval, draft copies of proposed amendments to the Project Implementation Agreement. Such drafts shall be provided at least 30 days before execution of an amendment to the Project Implementation Agreement.

9.3.1.2 Non-Profit Entity shall provide City, for City's review and comment, draft copies of (a) any Key Contracts not executed before the Effective Date and (b) proposed material amendments to Key Contracts (regardless of whether the Key Contract to be amended was executed before the Effective Date), other than the Project Implementation Agreement, which is addressed in Section 9.3.1.1. Such drafts shall be provided at least 30 days before execution of such Key Contract or an amendment to a Key Contract, as applicable. Any proposed amendment to required terms described in Section 9.3.2 (Key Contract Provisions) shall be considered a material amendment and shall require the prior approval of City.

9.3.1.3 Except as otherwise approved by City, Non-Profit Entity shall retain, employ and utilize the firms and organizations identified in the Implementation Proposal to fill the roles designated therein.

9.3.1.4 Non-Profit Entity shall not terminate or permit termination of the Project Implementation Agreement or permit any substitution, replacement or assignment of Principal Project Company, except with City's prior approval, in its sole discretion.

9.3.1.5 Non-Profit Entity shall not terminate or permit termination of any Key Contract (other than the Project Implementation Agreement, which is addressed in Section 9.3.1.4) or permit any substitution, replacement or assignment of any Key Contractor (other than Principal Project Company, which is addressed in Section 9.3.1.4), except with City's prior approval; provided, however, that City's prior approval is not required in the event of (a) any termination of this Agreement where City elects not to assume Non-Profit Entity's future obligations under such Key Contract, (b) any suspension, debarment, disqualification or removal (distinguished from ineligibility due to lack of financial qualifications) of the Key Contractor, or (c) any agreement for voluntary exclusion of the Key Contractor, from bidding, proposing or contracting with any federal, State or local department or agency. City agrees to act reasonably with respect to approval of a replacement in the case of material uncured default by the Key Contractor under the Key Contract, other than with respect to the Project Implementation Agreement and Principal Project Company, which is addressed in Section 9.3.1.4. In the event of a debarment or other event that would prevent the Non-Profit Entity from completing its obligations under this Agreement, Principal Project Company shall have the right to assume the Non-Profit Entity's obligations under this Agreement.

9.3.2 Key Contract Provisions

9.3.2.1 Each Key Contract shall comply with the requirements set forth in Exhibit 14 (Key Contract Provisions).

9.4 Prompt Payment to Contractors

Non-Profit Entity shall comply, and shall cause each Contractor to comply, with the provisions of Business and Professions Code section 7108.5, California Civil Code sections 8122-8138, and any other applicable Law relating to prompt payment of contractors and/or subcontractors and waivers and releases by them of stop payment notices and payment bond rights.

9.5 Key Personnel

Non-Profit Entity shall:

(a) retain, employ and utilize the individuals specifically listed in the Implementation Proposal, and retain, employ and utilize individuals qualified for the positions described in Section 1.1.4 of Division 1 of the Technical Requirements to fill Key Personnel positions for the relevant period identified in the Technical Requirements; Non-Profit Entity acknowledges that if City reasonably determines that an individual is not qualified for a Key Personnel position, Non-Profit Entity shall at City's request replace that individual with one that meets the required qualifications;

(b) not change or substitute any such individuals except due to retirement, death, disability, incapacity, or voluntary or involuntary termination of employment, or as otherwise approved by City under Section 9.5(c);

(c) promptly provide Notice to City of any proposed replacement for any Key Personnel position. City shall have the right to review the qualifications and character of each individual to be appointed to a Key Personnel position and shall act reasonably in approving or disapproving use of such individual in such position before the commencement of any Work by such individual;

(d) cause each Key Person to dedicate the full amount of time necessary for the proper prosecution and performance of the Work, as more specifically described in Section 1.1.4 of Division 1 of the Technical Requirements;

(e) commit each Key Person to the Project in accordance with Section 1.1.4 of Division 1 of the Technical Requirements;

(f) provide City with office and cell phone numbers and email addresses for each Key Person. City may contact Key Personnel 24 hours per day, seven days per week, with response times in compliance with the Technical Requirements and Exhibit 4 (Payment Mechanism), or if none are specified, within commercially reasonable expectations for response times;

(g) ensure that the Project Manager identified in the Implementation Proposal or otherwise approved by City (i) will have full responsibility for the prosecution of

the D&C Work, (ii) will act as agent and be a single point of contact in all matters relating to the D&C Work on behalf of Non-Profit Entity at least until Final Acceptance, (iii) will be present (or ensure that his or her approved designee is present) at the construction site at all times that Construction Work is performed, and (iv) will be available to respond promptly to City; and

(h) ensure that the Quality Program Manager identified in the Implementation Proposal or otherwise approved by City (i) will have full responsibility for quality assurance and quality control with respect to D&C Work until Final Acceptance, (ii) is present (or his or her approved designee is present) at the construction site at all times that Construction Work is performed, and (iii) will be available to respond promptly to City,

provided that, the Parties acknowledge and agree that all Key Personnel obligations shall be passed down to Principal Project Company pursuant to the Project Implementation Agreement.

9.5.1 Key Personnel Deductions

9.5.1.1 If an individual filling a Key Personnel role is not available for, or actively involved in, the performance of the Work per their position requirement as required in Section 1.1.4 of Division 1 of the Technical Requirements, as determined by City in its good faith discretion, then:

(a) Non-Profit Entity acknowledges and agrees that City and the Project will suffer significant and substantial damages and that it is impracticable and extremely difficult to ascertain and determine the actual damages which would accrue to City in such event;

(b) Subject to Section 9.5.2 (Limitations on Deductions for Unavailability of Key Personnel), Non-Profit Entity shall pay City a Key Personnel deduction as follows, for each position held by such individual, as deemed compensation to City for such damages:

Category	**KEY PERSONNEL DEDUCTION**
Project Manager	$150,000
Deputy Project Manager	$75,000
Design Manager	$75,000
Construction Manager	$75,000
Quality Program Manager	$75,000
Project Safety Representative	$75,000
Construction Superintendent	$75,000
Third Party and Utility Coordinator Manager	$75,000

and

(c) Non-Profit Entity agrees to pay a further Key Personnel deduction for all Key Personnel in the amount of 50% of the applicable amounts listed under

Section 9.5.1.1(b) for each 6 calendar month period where any Key Personnel position is vacant or not being fulfilled in accordance with this Agreement as determined by City.

9.5.1.2 Non-Profit Entity agrees that the Key Personnel deductions payable in accordance with Section 9.5.1.1 are liquidated damages, not a penalty and are reasonable under the circumstances existing as of the Effective Date. The Parties have agreed to liquidated damages under this Section 9.5.1 (Key Personnel Deductions) in order to fix and limit Non-Profit Entity's costs and to avoid later Contract Disputes over what amounts of damages are properly chargeable to Non-Profit Entity.

9.5.1.3 Without modifying City's rights to make deductions from Milestone Payment 2 in accordance with this Agreement, on or before the Substantial Completion Date, City may deduct amounts owing from Non-Profit Entity to City under Section 9.5.1.2 from amounts owing from City to Non-Profit Entity under this Agreement (including Milestone Payment 2), or to collect such liquidated damages from the Performance Bond. Following the Substantial Completion Date, City may require Non-Profit Entity to pay City amounts owing under Section 9.5.1.2, collect such liquidated damages from the Performance Bond and/or exercise any such rights and remedies set forth in Section 11.6.3.

9.5.2 Limitations on Deductions for Unavailability of Key Personnel

9.5.2.1 Non-Profit Entity is not liable for liquidated damages under Section 9.5.1.1 if:

(a) Non-Profit Entity removes or replaces such personnel at the direction of City; or

(b) An individual filling a Key Personnel position is unavailable because of the application of applicable Law, or due to death, disability, family leave, retirement, injury or no longer being employed by the applicable NPE-Related Entity (provided that moving to an affiliated company or a Subcontractor is not considered grounds for avoiding liquidated damages),

provided Non-Profit Entity promptly proposes to City a replacement for such personnel for review and approval within 30 days of unavailability, in the case of Sections 9.5.2.1(a) or 9.5.2.1(b).

9.5.2.2 Non-Profit Entity may replace the Non-Profit Entity's Project Manager not more frequently than every three years following Final Acceptance without incurring liquidated damages under Section 9.5.1 (Key Personnel Deductions), but only if Non-Profit Entity replaces the outgoing Non-Profit Entity's Project Manager with a City-approved replacement before the outgoing individual vacates the position.

9.5.2.3 Upon approval of any Key Personnel replacement, the new individual shall be considered a Key Personnel for all purposes under this Agreement, including this Section 9.5.2 (Limitations on Deductions for Unavailability of Key Personnel).

9.5.3 Skilled Personnel; Removal at City Direction

All individuals performing the Work shall have the skill and experience and any licenses or certifications required to perform the Work assigned to them. If City determines, in its good faith discretion, that any individual employed by Non-Profit Entity or by any Subcontractor is not performing the Work in a proper, safe and skillful manner, then at the written request of City, Non-Profit Entity or such Subcontractor shall promptly remove such individual and such individual shall not be re-employed on the Project without the prior written approval of City, in its good faith discretion. If Non-Profit Entity or the Subcontractor fails to remove such individual or individuals or fails to furnish skilled and experienced personnel for the proper performance of the Work, then City may, in its good faith discretion, suspend the affected portion of the Work for cause by delivery of Notice of such suspension to Non-Profit Entity. Such suspension shall in no way relieve Non-Profit Entity of any obligation contained in the Contract Documents or entitle Non-Profit Entity to a time extension, compensation or other Change Order. Once compliance is achieved, as determined by City, City will deliver Notice to Non-Profit Entity and Non-Profit Entity shall be entitled to and shall promptly resume the Work. If City's determination is later found to not have been exercised in good faith, such suspension shall be considered a suspension for convenience.

9.6 SBE Participation

9.6.1 This Project is subject to the "Small Business Enterprise/Disadvantaged Business Enterprise ("SBE/DBE") Plan" dated December 2024, (the "SBE/DBE Plan") as updated from time to time, which has SBE participation goals as set forth in Section 9.6.3. The SBE/DBE Plan is binding on Non-Profit Entity and the Project.

9.6.2 Non-Profit Entity shall comply with the terms and conditions set forth in the SBE/DBE Plan, and shall be responsible for ensuring that D&C Contractor complies with requirements of the SBE/DBE Plan and with D&C Contractor's Open-Ended Performance Plan ("OEPP") submitted in compliance therewith. Non-Profit Entity shall also comply with SFMTA's SBE/DBE Program and federal regulations (49 CFR 26) issued March 4, 1999, as amended from time to time.

9.6.3 Non-Profit Entity shall either achieve or demonstrate it has exercised good faith efforts to achieve, and shall be responsible for ensuring that D&C Contractor either achieves or demonstrates it has exercised good faith efforts to achieve, the following SBE participation goals:

Infrastructure Facility Project Phase	**SBE Goal**	**DBE Goal**
Design and Professional Services Work	25%	0%
Construction Work	20%	0%

9.6.4 Intentionally Omitted.

9.6.5 Non-Profit Entity shall comply with, and shall be responsible for ensuring D&C Contractor complies with, the following requirements for SBE set-asides set forth in the SBE/DBE Plan:

<table>
<tr><th>Infrastructure Facility Project Phase</th><th>SBE Set-Aside</th></tr>
<tr><td>Design and Professional Services Work</td><td>At least one SBE designer, the participation of which shall count towards the Design and Professional Services Work SBE participation goal set forth in Section 9.6.3.</td></tr>
<tr><td>Construction Work</td><td>
<table>
<tr><th>CATEGORIES</th><th>SET-ASIDE PERCENTAGE (%)
At a minimum</th></tr>
<tr><td>Structural Concrete Contractor</td><td>10%</td></tr>
<tr><td>Site Concrete within Sidewalks</td><td>10%</td></tr>
<tr><td>Earthwork & Paving</td><td>100%</td></tr>
<tr><td>Drywall</td><td>30%</td></tr>
<tr><td>Electrical</td><td>10%</td></tr>
<tr><td>Insulation/Acoustical</td><td>100%</td></tr>
<tr><td>Landscape</td><td>100%</td></tr>
<tr><td>Traffic Control</td><td>100%</td></tr>
<tr><td>Trucking and Hauling</td><td>75%</td></tr>
<tr><td>Construction Clean-up</td><td>100%</td></tr>
</table>
The above SBE set-aside participation shall count towards the Construction Work SBE participation goal set forth in Section 9.6.3.
</td></tr>
</table>

9.6.6 Non-Profit Entity shall comply with, and shall be responsible for ensuring D&C Contractor complies with, the 75% SBE trucking set-aside applicable to all eligible trucking work, in accordance with the SBE/DBE Plan.

9.6.7 To obtain accurate records of Non-Profit Entity's performance towards meeting its SBE participation goals, Non-Profit Entity shall develop and utilize, and cause D&C Contractor to utilize, a reporting system to track SBE participation, in accordance with the SBE/DBE Plan. Such reporting system shall be submitted for City approval within 60 days of the Effective Date.

9.6.8 Achievement of the SBE participation goal for each type of Work identified in Section 9.6.3 will be measured as a percentage of Non-Profit Entity's costs for each such type of Work, where the total amount paid to SBE firms for each such type of Work will be measured against Non-Profit Entity's costs for each such type of Work, without reduction for D&C Period Deductions or other offsets.

9.6.9 If Non-Profit Entity fails to achieve any SBE participation goals, then Non-Profit Entity must demonstrate it met all good faith efforts requirements for achieving the goals, including demonstrating that the Non-Profit Entity caused the D&C Contractor to implement and demonstrate good faith efforts, in accordance with the SBE/DBE Plan. In addition to good faith efforts, Non-Profit Entity is encouraged to perform, and shall cause D&C Contractor to perform, best faith outreach efforts to maximize SBE participation in the Work.

9.6.10 Non-Profit Entity shall not, nor shall it permit D&C Contractor to, terminate any listed SBE, including approved substitutions, or any portion of an SBE's Work, without prior written consent of City and in compliance with the SBE/DBE Plan. Unless City's prior written consent is provided for termination or substitution of an SBE, Non-Profit Entity shall not be entitled to any payment for work or materials identified for an SBE unless it is performed or supplied by such SBE.

9.6.11 City will provide written notice to the Non-Profit Entity of any complaint, failure to report, or other action or inaction on the part of the Non-Profit Entity or D&C Contractor that causes City to question SBE participation under this Agreement. Non-Profit Entity shall, or shall cause D&C Contractor, to demonstrate to the satisfaction of City that it has exercised good faith efforts to satisfy its obligations under this Section 9.6 (SBE Participation), the SBE/DBE Plan, the OEPP, SFMTA's SBE/DBE Program and federal regulations (49 CFR 26).

9.6.12 Failure by Non-Profit Entity to carry out, or failure of the Non-Profit Entity to cause D&C Contractor to carry out, the SBE/DBE requirements set forth in this Section 9.6 (SBE Participation) and/or the SFMTA's SBE/DBE Program is a material breach of this Agreement, which may result in:

(a) the termination of this Agreement;

(b) the withholding of funds pursuant to Section 11.6.1, pending investigation of a complaint of violation of the SBE/DBE Plan;

(c) D&C Noncompliance Points and D&C Period Deductions as set forth in Exhibit 4A (Milestone Payment Mechanism); and/or

(d) other administrative remedies, including monetary liability, as set forth in the SBE/DBE Plan or in this Agreement.

9.6.13 OEPP

9.6.13.1 In accordance with the SBE/DBE Plan, D&C Contractor's OEPP shall be binding upon the D&C Contractor and Non-Profit Entity shall use the OEPP as a measure of compliance with the requirements of this Section 9.6 (SBE Participation) and the SBE/DBE Plan.

9.6.13.2 Non-Profit Entity shall cause D&C Contractor to update its OEPP at least quarterly, on January 15, April 15, July 15, and October 15 of each year until the Final Acceptance Date. OEPP updates shall be in accordance with the SBE/DBE Plan and shall be subject to City review and approval.

9.6.14 Non-Profit Entity Liaison and D&C Contractor SBE/DBE Liaison

Non-Profit Entity shall retain a Non-Profit Entity Liaison, and shall cause D&C Contractor to retain a D&C Contractor SBE/DBE Liaison, in accordance with the SBE/DBE Plan.

9.6.15 Small Business Assistance

Non-Profit Entity shall develop, or shall cause Principal Project Company to develop and cooperate in the development of, a capacity building initiative that is multi-pronged and designed to support SBE growth and development, in accordance with the SBE/DBE Plan and including education and training programs and a mentor-protégé program.

9.7 Contracts with Affiliates

9.7.1 Excluding Work for which the full, fixed price has been included in the Implementation Proposal Final Price and been financed as of Financial Close, Affiliates of Non-Profit Entity or any NPE-Related Entity may perform Work only if:

(a) Non-Profit Entity or a Contractor executes a written Contract with the Affiliate which:

(i) complies with all applicable provisions of the Contract Documents, including this Article 9 (Contracting and Labor Practices), is consistent with Good Industry Practice, and is in form and substance substantially similar to Contracts then being used by Non-Profit Entity or Affiliates for similar Work or services with unaffiliated contractors;

(ii) sets forth the scope of Work and all the pricing, terms respecting the scope of Work;

(iii) contains pricing, scheduling and other terms no less favorable to Non-Profit Entity than those that Non-Profit Entity could reasonably obtain in an arms'-length, competitive transaction with an unaffiliated Contractor. Non-Profit Entity shall bear the burden of proving that the same are no less favorable to Non-Profit Entity; and

(b) The Work to be performed by the Affiliate is not Work that any Contract Document, the Project Management Plan indicates is to be performed by an independent or unaffiliated party.

9.7.2 Before Non-Profit Entity or a Contractor enters into a written Contract (including supplements and amendments) with an Affiliate, Non-Profit Entity shall submit a true and complete copy of the proposed Contract to City for comment. City shall have 20 days after receipt to deliver its comments to Non-Profit Entity. If the Contract with the Affiliate is a Key Contract, it shall be subject to City's approval as provided in Section 9.3.1 (Key Contract Approvals, Amendments and Termination; Use of and Change in Key Contractors).

9.7.3 Non-Profit Entity shall make no payments to Affiliates for work or services in advance of provision of such work or services, except for reasonable mobilization payments or other payments consistent with arm's length, competitive transactions of similar scope. Advance payments in violation of this provision shall be excluded from the calculation of Termination Compensation.

9.8 Labor Standards

9.8.1 In performing the Work, Non-Profit Entity shall comply, and require all Contractors to comply, with all applicable federal and State labor, occupational safety and health Laws and orders, including payment of Prevailing Rate of Wages.

9.8.2 By the 15th day of each calendar month until the Final Acceptance Date has occurred, Non-Profit Entity shall submit to City certified payroll records for all employees of Non-Profit Entity and Contractors at all tiers for the preceding calendar month.

9.8.3 In the event a prevailing wage law violation is discovered, City may withhold pursuant to Section 11.6.1, from payments owing to the Non-Profit Entity (including Milestone Payment 2) Non-Profit Entity's underpaid back wages plus penalties as required under Section 6.22(e)(8) (Non-Compliance with Wage Provisions – Penalties) of the San Francisco Administrative Code until the violation is resolved.

9.8.4 All individuals performing the Work shall be qualified, experienced, competent and skilled in the performance of the portion of the Work assigned and related obligations of Non-Profit Entity in accordance with the Contract Documents and any applicable minimum levels in the Technical Requirements.

9.8.5 If any individual employed by Non-Profit Entity or any Contractor lacks required qualifications, skill, competence, experience, licensing, certification, registration, permit, approval, bond or insurance or is not performing the Work in a proper, safe and skillful manner, then Non-Profit Entity shall, or shall cause such Contractor to, remove such individual, and such individual shall not be re-employed on the Work.

9.8.6 If, after Notice and reasonable opportunity to cure, Non-Profit Entity fails to take action as required by Section 9.8.5, or if Non-Profit Entity fails to ensure that qualified, skilled, experienced, competent, licensed, certified, registered, permitted and approved personnel are furnished for the proper performance of the Work, then City may suspend the affected portion of the Work by delivering to Non-Profit Entity Notice of such suspension. Such suspension shall in no way relieve Non-Profit Entity of any obligation contained in the Contract Documents.

9.9 Local Hiring Requirements for Construction Work and Renewal Work

Non-Profit Entity shall comply with local hiring requirements for Construction Work and Renewal Work, as mandated by the San Francisco Local Hiring Policy for Construction set forth in Chapter 82 of the Administrative Code and related implementing regulations.

9.10 First Source Hiring Program

Non-Profit Entity shall comply with all applicable provisions of the First Source Hiring Program as set forth in Chapter 83 of the San Francisco Administrative Code, including all enforcement and penalty provisions.

9.11 SFMTA Employment Training Program

9.11.1 As part of the SFMTA Employment Training Program, Non-Profit Entity shall cause at least 4 professional services trainees to be hired during the period of the D&C Work for

professional services performed for the Infrastructure Facility. If a person hired through the First Source Hiring Program also meets the trainee requirements described below, that person may be counted toward these trainee hiring requirements. Trainees may be obtained through the City's One Stop Employment Center, which works with various employment and job training agencies/organizations or other employment referral source.

9.11.2 Non-Profit Entity shall ensure that:

(a) Each trainee is hired by either the Non-Profit Entity or a Contractor providing professional services for the Infrastructure Facility.

(b) No trainee is counted towards meeting more than one contract requirement. For example, if City and Non-Profit Entity enter into this Agreement and another contract, any trainee hired for services under this Agreement would not count toward the trainee hiring requirement for the other contract.

(c) Each trainee meets enrollment qualifications established under the City's First Source Hiring Program as follows:

(i) "Qualified" with reference to an economically disadvantaged individual shall mean an individual who meets the minimum bona fide occupational qualifications provided by the prospective employer to the San Francisco Workforce Development System in the job availability notices required by the First Source Hiring Program.

(ii) "Economically disadvantaged individual" shall mean an individual who is either (i) eligible for services under the Workforce Investment Act of 1988 (29 U.S.C. 2801 et seq.), as determined by the San Francisco Private Industry Council; or (ii) designated "economically disadvantaged" by the FS First Source Hiring Program HP administration, which means an individual who is at risk of relying upon, or returning to, public assistance.

(iii) "On-the-job training" means the hiring party hire the trainee on a full-time basis for at least 12 months or on a part-time basis for 24 months (using the full-time or part-time definition of the employer hiring that trainee), with prior approval offering him/her on-the-job training that allows the trainee to progress on a career path.

(d) Before a trainee is hired by a Contractor or by Non-Profit Entity, Non-Profit Entity submits for City's approval a description and summary of training proposed for that trainee, along with the rate of pay for the position.

(e) A trainee's commitment does not require that he/she is used only on this Project; the trainee may also be used on other Non-Profit Entity or Contractor projects that may be appropriate for the trainee's skill development.

Non-Profit Entity acknowledges its obligation to hire or cause to be hired trainees pursuant to the Trainee Plan and shall comply with the Trainee Plan during the D&C Period.

9.12 D&C Period Deductions and D&C Noncompliance Points Relating to Local Hire and SFMTA Training Program Requirements Development

If Non-Profit Entity fails to meet certain requirements set forth in this Article 9 (Contracting and Labor Practices), City may, without limiting City's other rights and remedies under this Agreement, assess D&C Period Deductions and D&C Noncompliance Points as provided in Exhibit 4A (Milestone Payment Mechanism).

9.13 Ethical Standards

9.13.1 Non-Profit Entity or its representatives shall not make, nor cause to be made, any cash payments, commissions, employment, gifts, entertainment, free travel, loans, free work, substantially discounted work, or any other considerations to (a) City representatives, employees, or their relatives, or (b) representatives of subcontractors, or material suppliers or any other individuals, organizations, or businesses receiving funds in connection with this Project.

9.13.2 Non-Profit Entity employees (or their relatives), agents, or subcontractors shall not receive any cash payments, commissions, employment, gifts, entertainment, free travel, loans, free work, or substantially discounted work or any other considerations from any other contractors or from any City employee, agent, representative.

9.13.3 Non-Profit Entity agrees to provide Notice to a designated City representative within 48 hours of any instance where Non-Profit Entity becomes aware of a failure to comply with the provisions of this Section 9.13 (Ethical Standards).

ARTICLE 10. INSURANCE; PAYMENT AND PERFORMANCE SECURITY; INDEMNITY

10.1 Insurance

10.1.1 Insurance Policies and Coverage

Non-Profit Entity shall procure and maintain, or cause to be procured or maintained, the Insurance Policies identified in this Section 10.1 (Insurance) and in Exhibit 7 (Insurance Requirements) strictly in accordance with the minimum coverage requirements and terms of coverage as set forth in Exhibit 7 (Insurance Requirements) and in this Section 10.1 (Insurance). Non-Profit Entity shall timely pay, or cause to be paid, the premiums for all Insurance Policies and insurance coverages required by this Agreement. There shall be no recourse against City or any of the other City Additional Insureds for payment of premiums or other amounts with respect to the Insurance Policies, except to the extent (a) included within the Milestone Payments and/or the Availability Payments or (b) an increase in premiums is a compensable Extra Work Cost as part of a Compensable Delay Event.

10.1.2 General Insurance Requirements

10.1.2.1 Insurers

All insurance required hereunder shall be procured from insurers that at the time coverage commences are authorized to do business in the State and have a rating of not less than A-:VIII according to A.M. Best's Financial Strength Rating and Financial Size Category, except as otherwise provided in Exhibit 7 (Insurance Requirements) or approved in writing by City in its reasonable discretion.

10.1.2.2 Deductibles; Self-Insured Retentions; Claims Exceeding Policy Limits

Except to the extent expressly provided otherwise in the Contract Documents, Non-Profit Entity shall be responsible for paying all insurance deductibles and self-insured retentions, and City shall have no liability for deductibles, self-insured retentions or claim amounts exceeding the required policy limits. If City is the sole cause of an insured Loss (including Losses caused by the SFMTA's operations) City shall pay the applicable insurance deductibles and self-insured retentions, notwithstanding any subrogation waivers. In the event that any required insurance coverage involves a self-insured retention: (a) the entity responsible for the self-insured retention shall have an authorized representative issue a letter to City, at the same time the Insurance Policy is to be procured, stating that it shall protect and defend City to the same extent as if an insurer provided coverage for City; and (b) Non-Profit Entity shall ensure that the relevant Insurance Policy expressly permits (but does not obligate) City, or a designee of City, to pay the self-insured retention to satisfy any policy condition requiring payment of the self-insured retention for coverage to apply. If the entity responsible for the self-insured retention does not pay the self-insured retention amount when due, then City may, but is not obligated to, pay the self-insured retention amount on behalf of such entity, and Non-Profit Entity shall indemnify City for such amount and any other Losses incurred by City in connection with the entity's failure to pay the self-insured retention amount when due.

10.1.2.3 Primary Coverage

Without any limitation, each policy shall provide that the coverage afforded under the policy is primary and noncontributory with respect to any other insurance available to all named and City Additional Insureds.

10.1.2.4 Verification of Coverage

(a) When Non-Profit Entity is required by the Contract Documents to initially obtain or cause to be obtained an Insurance Policy, Non-Profit Entity shall deliver to City a certificate of insurance before policy inception followed by a binder of insurance in a form reasonably acceptable to City no later than 45 days following policy inception. Non-Profit Entity shall make submit all certificates of insurance including relevant endorsements attached to the certificates of insurance prior to each policy effective date and binders of insurance as soon as they are issued by the insurers but not later than 45 days following policy inception. Each required binder must state the identity of all insurers, list all named and additional insureds, state the type of coverage and limits including any applicable sublimits, list all deductibles and self-insured retentions, provide the policy effective and expiration date, and list all applicable endorsements once available.

(b) In addition, as soon as they become available, Non-Profit Entity shall deliver to City (i) a true and complete copy of each such Insurance Policy or modification, or renewal or replacement Insurance Policy obtained by Non-Profit Entity or a Prime Contractor and all endorsements thereto and (ii) satisfactory evidence of payment of the premium therefor.

(c) If Non-Profit Entity has not provided City with the certificates of insurance, including applicable endorsements, prior to policy inception and evidence of premium payment within 30 days after each payment is due, City may, upon written Notice to Non-Profit Entity, in addition to any other available remedy, without obligation and without further inquiry as to whether such insurance is actually in force, elect to obtain such an Insurance Policy; and Non-Profit Entity shall reimburse City for any Recoverable Costs thereof upon demand. In addition, City shall have the right, without obligation or liability, to suspend all or any portion of Work, during any time that such proofs of coverage, in compliance with this Section 10.1 (Insurance), have not been provided.

10.1.2.5 Waivers of Subrogation

City and Non-Profit Entity waive all rights against each other, against each of their respective agents, employees and Project consultants, and against Contractors and their respective members, directors, officers, employees, subcontractors and agents for any claims to the extent covered and paid by insurance obtained pursuant to this Section 10.1 (Insurance), with the exception of professional liability insurance and except such rights as they may have to the proceeds of such insurance. Non-Profit Entity shall require all Contractors to provide similar waivers in writing, each in favor of all other parties specified above. Each policy for which Non-Profit Entity or any Contractor is required to provide coverage for the City Additional Insureds shall include a waiver of any right of subrogation against the City Additional Insureds.

10.1.2.6 No Recourse

Except as may be inclusive within the Availability Payments or as expressly provided otherwise in this Agreement, there shall be no recourse against City for payment of premiums or other amounts with respect to the insurance Non-Profit Entity is required to provide hereunder.

10.1.2.7 Support of Indemnifications

The insurance coverage Non-Profit Entity is required to provide hereunder shall support but is not intended to limit Non-Profit Entity's indemnification obligations under the Contract Documents.

10.1.2.8 Additional Terms and Conditions

(a) Each Insurance Policy shall state or be endorsed to state that coverage cannot be canceled except after 30 days' prior Notice (or ten days in the case of cancellation for non-payment of premium) has been given to City. No policy language or endorsement shall include any limitation of liability of the insurer for failure to provide such Notice.

(b) No Insurance Policy shall provide coverage on a "claims made" basis, with the exception of any professional liability Insurance Policies, unless specifically approved in writing by City.

10.1.2.9 Requirements Not Limiting

The Parties acknowledge and agree that:

(a) requirements for specific coverage features or limits contained in this Section 10.1 (Insurance) and in Exhibit 7 (Insurance Requirements) are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any Insurance Policy;

(b) specific reference to a given coverage feature is not intended to be all inclusive, or to the exclusion of other coverage, or a waiver of any type; and

(c) all insurance coverage and limits provided by Non-Profit Entity, or by third parties pursuant to obligations of Non-Profit Entity under this Agreement, and, in each case, available or applicable to this Agreement are intended to apply to the full extent of the Insurance Policies, and nothing contained in this Agreement limits, or shall be deemed to limit, the application of such insurance coverage.

Except as otherwise specifically set forth in the Contract Documents, Non-Profit Entity may meet its insurance obligations in any manner Non-Profit Entity deems reasonably appropriate, so long as, in each case, and with respect to the coverages prescribed for each Insurance Policy, Non-Profit Entity meets all the requirements therefor.

10.1.2.10 Deemed Self-Insurance by Non-Profit Entity

If, in any instance, Non-Profit Entity (i) has not performed its obligations respecting insurance coverage set forth in this Agreement or (ii) is unable to enforce and collect any such insurance for failure (x) to assert claims in accordance with the terms of the Insurance Policies or (y) to prosecute claims diligently, then, for purposes of determining Non-Profit Entity's liability and the limits thereon or determining reductions in compensation due from City to Non-Profit Entity on account of available insurance, Non-Profit Entity shall be treated as if it has elected to self-insure up to the full amount of insurance coverage which would have been available had Non-Profit Entity performed such obligations and not committed such failure.

10.1.2.11 Umbrella and Excess Policies

Non-Profit Entity shall have the right to satisfy the requisite insurance coverage amounts for liability insurance through a combination of primary policies and umbrella or excess policies. Umbrella and excess policies shall comply with all insurance requirements for the applicable type of coverage ("follow form").

10.1.2.12 Inadequacy of Required Coverage

City makes no representation that the scope of coverage and limits of liability specified for any Insurance Policy to be carried pursuant to this Agreement or approved variances therefrom are adequate to protect Non-Profit Entity against its undertakings under this Agreement to City, or its liabilities to any third party. It is the responsibility of Non-Profit Entity and each Subcontractor to determine if any changes or additional coverages are required to adequately protect their interests. No such limits of liability or approved variances therefrom shall preclude City from taking any actions as are available to it under this Agreement, or otherwise under applicable Law.

10.1.2.13 No Relief from Liabilities and Obligations

Neither compliance nor failure to comply with the insurance provisions of this Agreement will relieve Non-Profit Entity or City of their respective liabilities and obligations under this Agreement.

10.1.3 Reserved

10.1.4 Insurance Unavailability

10.1.4.1 If an Insurance Unavailability risk occurs, then:

(a) Non-Profit Entity shall notify City within 10 days of becoming aware that the risk has become an Insurance Unavailability; and

(b) City will meet with Non-Profit Entity within 10 days after receipt of Non-Profit Entity's Notice to discuss the risk, including whether the risk is in fact Insurance Unavailability.

10.1.4.2 If Non-Profit Entity demonstrates to City's reasonable satisfaction that it has used diligent efforts in the global insurance and reinsurance markets to procure the required

Insurance Policy coverages for the Insurance Unavailability, and if, despite such diligent efforts and, through no fault of Non-Profit Entity or any other NPE-Related Entity, any Insurance Unavailability exists or occurs, the Parties shall meet further to discuss how the risk should be managed.

10.1.4.3 If the Parties cannot agree on how to manage the Insurance Unavailability, then City, in its sole discretion, shall elect one of the following, and City's election shall be final and not subject to Article 18 (Partnering; Contract Dispute Procedures):

(a) compensate Non-Profit Entity for the costs of any Claim or liability incurred in connection with the Insurance Unavailability, up to an amount equal to the Insurance Proceeds that would have been payable had the relevant Insurance Policy continued to be available on the previous terms of that Insurance Policy and deduct from Milestone Payment 2 owing to Non-Profit Entity 100% of the greater of (i) the amount of insurance premiums Non-Profit Entity would have been obligated to pay under this Agreement (up to the Commercially Reasonable Insurance Rates) and (ii) the premiums assumed in the Financial Model;

(b) if the Insurance Policies are available from insurers meeting the requirements in Section 10.1.2.1 (Insurers), but not at Commercially Reasonable Insurance Rates, provide Notice to Non-Profit Entity to obtain the Insurance Policy and that City will be responsible for 100% of the premiums that exceed the Commercially Reasonable Insurance Rates;

(c) provide Notice to Non-Profit Entity approving one or more variances from Exhibit 7 (Insurance Requirements) such that the risk ceases to be Insurance Unavailability, in which case City will be entitled to a reduction in Milestone Payment 2 equal to 100% of the insurance premiums that Non-Profit Entity avoids as a result of the variance from Exhibit 7 (Insurance Requirements). In determining Non-Profit Entity's avoided insurance premiums, the Parties shall compare the actual premiums up to the greater of (i) the amount of insurance premiums Non-Profit Entity would have been obligated to pay for the relevant Insurance Policy had it been available under normal market conditions without variance from Exhibit 7 (Insurance Requirements) or (ii) the premiums for the relevant Insurance Policy assumed in the Financial Model; or

(d) terminate this Agreement by Notice to Non-Profit Entity, as further set out in Section 17.2.6 (Termination for Insurance Unavailability).

10.1.5 Review of Insurance Unavailability Risks

10.1.5.1 Whenever Non-Profit Entity has received information from its insurance adviser or other credible insurance industry source that Insurance Unavailability will likely exist during the next insurance renewal period, and annually during any period that Insurance Unavailability exists, Non-Profit Entity shall deliver Notice thereof to City and submit a report to City that includes the following elements:

(a) evidence of Non-Profit Entity's efforts to obtain from at least three insurers meeting the requirements in Section 10.1.2.1 (Insurers) the relevant Insurance

Policy required to be maintained during the D&C Period and an explanation of the reasons such efforts were unavailing;

(b) a comprehensive assessment by Non-Profit Entity's independent insurance broker identifying the Insurance Unavailability risk, the reasons for unobtainability of insurance, and trends in insurance market conditions respecting the Insurance Unavailability risk;

(c) a comprehensive written explanation and analysis of:

(i) any claims and loss experience (paid or reserved) with respect to any NPE-Related Entity or Affiliate, whether in connection with the Project or Work or in connection with any unrelated work or activity of a NPE-Related Entity or Affiliate, since the last review period, with claim date(s), description of incident(s), claims amount(s), and the level of deductibles or self-insured retentions provided; and

(ii) the effect thereof on obtainability or unobtainability of the relevant Insurance Policies and coverage.

10.1.5.2 City retains the right to independently assess the accuracy of the information on insurance markets, Insurance Unavailability and impacts of claims and loss experience, and retains the right to perform its own independent insurance review, which may include retaining advisors and seeking independent quotes for the Insurance Policies, all of which shall be undertaken and performed by City and any of its retained experts in good faith and a commercially reasonable manner.

10.1.5.3 If City's review conducted in accordance with Section 10.1.5.2 determines that the relevant Insurance Unavailability is insurable at Commercially Reasonable Insurance Rates, then Non-Profit Entity will promptly procure the insurance in connection with that risk in accordance with Exhibit 7 (Insurance Requirements).

10.1.5.4 Non-Profit Entity shall use commercially reasonable efforts to ensure that the process set forth in this Section 10.1.5 (Review of Insurance Unavailability Risks) concludes sufficiently in advance of expiration of such Insurance Policies to ensure continuation of insurance coverage under renewed or replacement Insurance Policies. City will cooperate with Non-Profit Entity in its discharge of this obligation.

10.1.5.5 Defense Costs

Unless otherwise agreed to in writing by City, defense costs shall not erode the limits of coverage of any of the Insurance Policies, except that defense costs may be included within the limits of coverage of professional liability, contractor's pollution liability and pollution legal liability policies.

10.1.5.6 Contesting Denial of Coverage

If any Insurer under an Insurance Policy described in Section 10.1.1 (Insurance Policies and Coverage) denies coverage with respect to any claims reported to such Insurer, Non-Profit Entity and City shall cooperate in good faith to establish whether and to what extent to contest,

and how to fund the cost of contesting, the denial of coverage; provided that if the reported claim is a matter covered by an indemnity in favor of City or the denial is the result of Non-Profit Entity's failure to comply with an insurance requirement, then Non-Profit Entity shall bear all costs of contesting the denial of coverage.

10.1.6 Lender Insurance Requirements

If, under the terms of any Financing Agreement or Security Document, Non-Profit Entity is obligated to, and does, carry insurance coverage with higher limits, lower deductibles or self-insured retentions, or broader coverage than required under this Agreement, Non-Profit Entity's provision of such insurance shall satisfy the applicable requirements of this Agreement provided such policy meets all the other applicable requirements of this Section 10.1 (Insurance) and Exhibit 7 (Insurance Requirements). If Non-Profit Entity carries insurance coverage in addition to that required under this Agreement, then, except for any directors and officers liability insurance carried by Non-Profit Entity, Non-Profit Entity shall include the City Additional Insureds as additional insureds thereunder and shall provide to City the proofs of coverage and certificates, binders and copies of the policy as described in Section 10.1.2.4 (Verification of Coverage). If, however, Non-Profit Entity demonstrates to City that inclusion of such City Additional Insureds as additional insureds will increase the premium, City shall elect either to pay the increase in premium or forego additional insured status.

10.1.7 Prosecution of Claims

10.1.7.1 Unless otherwise directed by City in writing with respect to City's insurance claims, Non-Profit Entity shall be responsible for reporting and processing all potential claims by City or Non-Profit Entity against the Insurance Policies required to be provided by Non-Profit Entity under the Contract Documents. City will make reasonable efforts to report to Non-Profit Entity incidents that City's Authorized Representative has Actual Knowledge of and that may give rise to an insurance claim against the Insurance Policies required to be provided by Non-Profit Entity under the Contract Documents. City will report such incidents to Non-Profit Entity within a reasonable period of time after City's Authorized Representative actually becomes aware of such incidents. Non-Profit Entity agrees to report timely to the insurer(s) under such policies any and all matters which may give rise to an insurance claim by Non-Profit Entity or City and to promptly and diligently pursue such insurance claims in accordance with the claims procedures specified in such policies, whether for defense or indemnity or both. Non-Profit Entity shall enforce all legal rights against the insurer under the applicable Insurance Policies and applicable Laws in order to collect thereon, including pursuing necessary litigation and enforcement of judgments, provided that Non-Profit Entity shall be deemed to have satisfied this obligation if a judgment is not collectible through the exercise of lawful and diligent means.

10.1.7.2 Non-Profit Entity shall immediately provide Notice to City, and thereafter keep City fully informed, of any incident, potential claim, claim or other matter of which Non-Profit Entity becomes aware that involves or could conceivably involve either City or City Additional Insureds as a defendant. City agrees to promptly provide Notice to Non-Profit Entity of City's incidents, potential claims, and matters which may give rise to a City insurance claim, to tender to the insurer City's defense of the claim (if applicable) under such Insurance Policies, and to cooperate with Non-Profit Entity as necessary for Non-Profit Entity to fulfill its duties hereunder.

10.1.7.3 If, in any instance, Non-Profit Entity (i) has not performed its obligations respecting insurance coverage set forth in this Agreement, or (ii) is unable to enforce and collect any such

insurance for failure (x) to assert claims in accordance with the terms of the Insurance Policies or (y) to prosecute claims diligently, then for purposes of determining Non-Profit Entity's liability and the limits thereon or determining reductions in compensation due from City to Non-Profit Entity on account of available insurance, Non-Profit Entity shall be treated as if it has elected to self-insure up to the full amount of insurance coverage which would have been available had Non-Profit Entity performed such obligations. Nothing in this Section 10.1.7 (Prosecution of Claims) or elsewhere in this Section 10.1 (Insurance) shall be construed to treat Non-Profit Entity as electing to self-insure where Non-Profit Entity is unable to collect due to the bankruptcy or insolvency of any insurer which at the time the Insurance Policy is written meets the rating qualifications set forth in this Section 10.1 (Insurance).

10.1.7.4 In the event that an Insurer providing any of the Insurance Policies required by this Agreement becomes the subject of bankruptcy proceedings, becomes insolvent, or is the subject of an order or directive limiting its business activities given by any Governmental Entity, including the State Department of Insurance, Non-Profit Entity shall exercise best efforts to promptly and at its own cost and expense secure alternative coverage in compliance with the insurance requirements contained in this Section 10.1 (Insurance) so as to avoid any lapse in insurance coverage.

10.1.7.5 If, in any instance, Non-Profit Entity has not promptly performed its obligation to report to applicable insurers and process any potential insurance claim tendered by City, then City may report the claim directly to the insurer and thereafter seek coverage under the relevant policy.

10.1.8 Application of Insurance Proceeds

All insurance proceeds received for physical property damage to the Project under any Insurance Policies required under Exhibit 7 (Insurance Requirements) shall be first applied to repair, reconstruct, rehabilitate, restore, renew, reinstate and replace each part or parts of the Project with respect to which such proceeds were received.

10.2 Performance Security

10.2.1 D&C Performance Security

10.2.1.1 On or before the Financial Close Date, Non-Profit Entity shall deliver, or cause to be delivered, the D&C Performance Security to City. The D&C Performance Security shall be comprised of the following ("**D&C Performance Security**"):

(a) the D&C Performance Bond; and

(b) the D&C Payment Bond.

10.2.1.2 The D&C Performance Bond shall remain in full force and effect until:

(a) The expiration of the Warranty Period*;*

(b) There exists no NPE Default with respect to the D&C Work; and

(c) No event has occurred that, with the giving of Notice or passage of time, or both, would constitute a NPE Default with respect to the D&C Work.

10.2.1.3 The D&C Payment Bond shall remain in full force and effect until:

(a) Expiration of the Warranty Period;

(b) Receipt of evidence satisfactory to City that all Persons eligible to file a Claim under applicable Law against the D&C Payment Bond have been fully paid;

(c) Receipt of unconditional releases of Claims and stop notices from all Subcontractors who have filed preliminary notices of Claims against the D&C Payment Bond; and

(d) Expiration of the statutory period for Contractors to file a Claim against the D&C Payment Bond, if no claims have been filed.

10.3 General Requirements for D&C Performance Security

10.3.1.1 Each D&C Performance Security shall be issued by an Eligible Surety or panel of Eligible Sureties.

10.3.1.2 The D&C Performance Security will be subject to the rights of Lenders under the Direct Agreement.

10.3.1.3 If the D&C Contract Amount is increased in connection with a Change Order, City may, in its sole discretion, require a corresponding and proportionate increase in the amount of each D&C Performance Security, or alternative security, as applicable.

10.3.1.4 Non-Profit Entity agrees that it may not seek an injunction to restrain City from calling upon any D&C Performance Security.

10.3.1.5 Unless otherwise specified in this Agreement, a draw on the D&C Performance Security or exercise of any rights under such D&C Performance Security will not be conditioned on prior resort to any other security of, or provided for the benefit of, Non-Profit Entity.

10.3.1.6 Non-Profit Entity will pay all Recoverable Costs imposed in connection with City's exercise of its remedies against any D&C Performance Security or replacements thereof.

10.3.1.7 Non-Profit Entity may:

(a) procure the D&C Performance Security, so that they are security, as applicable, for (i) Non-Profit Entity's performance obligations under the Contract Documents respecting the D&C Work and (ii) Non-Profit Entity's payment obligations to the designated Persons supplying labor or materials respecting the D&C Work; or

(b) subject to this Section 10.3 (General Requirements for D&C Performance Security), deliver D&C Performance Security from the Key Contractors for performance of any portion of the Work, so that each security is security for, as applicable, (i) performance of the Key Contractor's obligations under its

Contract for D&C Work or (ii) payment to the designated Persons supplying labor or materials respecting the D&C Work.

10.3.1.8 If Non-Profit Entity makes the election under Section 10.3.1.7(b), then:

(a) the language of the bond forms in Exhibit 6B (Form of D&C Payment Bond), Exhibit 6C (Form of D&C Performance Bond), Exhibit 6D (Form of Multiple Obligee Rider for D&C Payment Bond) and Exhibit 6E (Form of Multiple Obligee Rider for D&C Performance Bond) shall be adjusted to reflect this election, but only as necessary to (i) identify the Key Contract for D&C Work as the bonded contract, and (ii) identify the Key Contractor as the principal;

(b) if there are two or more parties providing the D&C Performance Security, then the aggregate sum of the D&C Performance Security shall equal the required bond amounts under this Agreement and the size of each bond shall be in proportion to the scope and cost of the Work to be provided under each bonded Key Contract. Subject to the terms of this Agreement, City may proceed against any or both of such bonds in the order that City, in its sole discretion, determines; and

(c) the Parties acknowledge and agree that if the D&C Performance Security is provided by the D&C Contractor, then the D&C Contract shall be the bonded contract, Principal Project Company shall be the principal thereunder, and recourse to such D&C Performance Security under this Agreement may only be based on the underlying obligations of the D&C Contractor thereunder.

10.3.1.9 City, as an additional obligee under the D&C Performance Security, will forbear from exercising remedies thereunder as additional obligee so long as Non-Profit Entity, Principal Project Company or the Collateral Agent, each as principal or additional obligee thereunder, has commenced the good faith, diligent exercise of remedies to cure the relevant default. The foregoing shall not obviate any agreement by City to forbear from exercising its rights and remedies contained in a Direct Agreement.

10.3.1.10 Non-Profit Entity, as an additional obligee under the D&C Performance Security, will forbear from exercising remedies thereunder in connection with the circumstances constituting a NPE Default so long as, subject to Section 10.3.1.9 above, City, as an additional obligee thereunder, has commenced the good faith, diligent exercise of remedies.

10.4 Letters of Credit

10.4.1 General Provisions

Wherever in the Contract Documents Non-Profit Entity has the option or obligation to deliver, or cause to be delivered, to City a letter of credit, in addition to any specific requirements relating to a particular letter of credit, the following provisions shall apply.

10.4.1.1 Except to the extent expressly provided otherwise in the Contract Documents, the letter of credit shall:

(a) be a direct pay, irrevocable standby letter of credit;

(b) be issued by a financial institution that is not an Affiliate, has a credit rating for long-term, unsecured debt of at least "A-" (or its equivalent) from one of the Rating Agencies, and has an office in Los Angeles, California, San Francisco, California, Chicago, Illinois, or New York, New York (or within reasonable proximity to these metropolitan areas) at which the letter of credit can be presented for payment. If the issuer's long-term, unsecured debt rating is downgraded such that the issuer no longer meets the ratings standard set forth above, Non-Profit Entity shall provide a replacement letter of credit issued by a financial institution meeting such standard within 30 days after the downgrade;

(c) be payable on demand, conditioned only on written presentment from a beneficiary thereof to the issuer of a sight draft drawn on the letter of credit and a certificate stating that the beneficiary has the right to draw under the letter of credit in the amount of the sight draft, up to the amount due to such beneficiary, without requirement to present the original letter of credit;

(d) be in place for the entire period of time for which the letter of credit is providing security;

(e) allow for multiple draws;

(f) name City as sole beneficiary; and

(g) be consistent with the requirements of this Section 10.4 (Letters of Credit).

10.4.1.2 Except to the extent expressly provided otherwise in the Contract Documents, if Non-Profit Entity has failed to pay or perform when due the duty, obligation or liability under the Contract Documents for which the letter of credit is held, City has the right, subject to any rights of Lenders under the Direct Agreement, to draw on the letter of credit as and when provided in Section 16.2.7 (Performance Bond). If City makes such a draw on the letter of credit, City shall use and apply the proceeds as provided in this Agreement for such letter of credit.

10.4.1.3 Except to the extent expressly provided otherwise in the Contract Documents and the Direct Agreement, City has the right to draw on the letter of credit, without prior Notice to Non-Profit Entity, if (a) Non-Profit Entity has failed to pay or perform when due the duty, obligation, or liability under this Agreement for which the letter of credit is held, (b) for any reason Non-Profit Entity fails to deliver to City a new or replacement letter of credit, on the same terms, at least 30 days before the expiry of the letter of credit, unless the applicable terms of the Contract Documents expressly provide that no further letter of credit is required with respect to such duty, obligation or liability, or (c) the financial institution issuing the letter of credit fails to meet the requirements in Section 10.4.1.1(b) and Non-Profit Entity fails to provide a substitute letter of credit issued by a qualified financial institution within 30 days after the downgrade. If City makes such a draw on the letter of credit, City shall be entitled to draw on the full face amount of the letter of credit and shall retain such amount as cash security to secure the obligations under the letter of credit, without payment of interest to Non-Profit Entity.

10.4.1.4 Except to the extent expressly provided otherwise in the Contract Documents and the Direct Agreement, a draw on letters of credit shall not be conditioned on prior resort to Non-Profit Entity or any other security of Non-Profit Entity. For all draws conditioned on prior Notice

from City to Non-Profit Entity, no such Notice shall be required if it would preclude draw before the expiration date of the letter of credit. City will use and apply draws on letters of credit (or cash security held from draws on letters of credit) toward satisfying the relevant obligation of Non-Profit Entity (or, if applicable, any other Person for which the letter of credit is performance security). Subject to City's rights under Sections 10.4.1.2 and 10.4.1.3, if City receives proceeds of a draw in excess of the relevant obligation, City will promptly refund the excess to Non-Profit Entity (or such other Person) after all relevant obligations are satisfied in full.

10.4.1.5 Except to the extent expressly provided otherwise in the Contract Documents, Non-Profit Entity's sole remedy in connection with the improper presentment or payment of sight drafts drawn under letters of credit shall be to obtain from City a refund of the proceeds which are misapplied, reimbursement of the reasonable costs Non-Profit Entity incurs as a result of such misapplication; provided that at the time of such refund Non-Profit Entity increases the amount of the letter of credit to the amount (if any) then required under applicable provisions of this Agreement. Non-Profit Entity acknowledges that the presentment of sight drafts drawn upon a letter of credit could not under any circumstances cause Non-Profit Entity injury that could not be remedied by an award of money damages, and that the recovery of money damages would be an adequate remedy. Accordingly, Non-Profit Entity covenants (a) not to request or instruct the issuer of any letter of credit to refrain from paying any sight draft drawn under the letter of credit and (b) not to commence or pursue any legal proceeding seeking, and Non-Profit Entity irrevocably waives and relinquishes any right, to enjoin, restrain, prevent, stop or delay any draw on any letter of credit.

10.4.1.6 Non-Profit Entity shall obtain and furnish all letters of credit and replacements thereof at its sole cost and expense, and shall pay all charges imposed in connection with City's presentment of sight drafts and drawing against letters of credit or replacements thereof.

10.4.1.7 If City makes a permitted assignment of its rights and interests under this Agreement, then Non-Profit Entity shall cooperate so that concurrently with the effectiveness of such assignment, either replacement letters of credit for, or appropriate amendments to, the outstanding letters of credit shall be delivered to the assignee naming the assignee as beneficiary, at no cost to Non-Profit Entity.

10.4.1.8 City acknowledges that if the letter of credit is performance security for a Person other than Non-Profit Entity or Principal Project Company (e.g., a Key Contractor other than Principal Project Company), City's draw may only be based on the underlying obligations of such Person; provided that City, as a beneficiary of any such letter of credit, will forbear from drawing upon such letter of credit so long as Non-Profit Entity, Principal Project Company or the Collateral Agent, each to the extent of its rights as a beneficiary thereunder, has commenced the good faith, diligent exercise of remedies to cure the relevant default. The foregoing shall not obviate any agreement by City to forbear from exercising its rights and remedies contained in a Direct Agreement. With respect to any letter of credit from Principal Project Company or pursuant to the Project Implementation Agreement, City may draw upon such letter of credit pursuant to either or both of this Agreement and the Project Implementation Agreement.

10.4.1.9 Non-Profit Entity, as a beneficiary of any letter of credit under which City is also a direct beneficiary, will forbear from drawing upon such letter of credit in any circumstances in which Non-Profit Entity is entitled to make such a draw to the extent that City is entitled under this Agreement to draw upon such letter of credit at such time.

10.5 Guarantees

10.5.1 Non-Profit Entity shall obtain, or shall cause Principal Project Company to obtain, a written guaranty, in form and substance set forth in Exhibit 6F (Form of D&C Contractor Guaranty), from the D&C Contractor Guarantor guaranteeing payment and performance of all obligations of the D&C Contractor under the D&C Contract (the "**D&C Contractor Guaranty**"). The D&C Contractor Guaranty shall expressly include City as a direct guaranteed party, with the same protections and rights of notice, enforcement and collection as are available to Non-Profit Entity and Principal Project Company, subject to the terms of Section 10.5.4. The D&C Contractor Guaranty shall provide that the rights and protections of City shall not be reduced, waived, released or adversely affected by the acts or omissions of any other guaranteed party. Non-Profit Entity shall deliver or cause to be delivered to City, concurrently with the issuance of the D&C Contractor Guaranty, a duplicate original of the D&C Contractor Guaranty.

10.5.2 If Non-Profit Entity, any Key Contractor, any Affiliate or any Lender receives from any Person a guaranty of payment or performance of any obligation(s) of a Key Contractor (other than the D&C Contractor Guaranty), then either Non-Profit Entity shall cause such Person to expressly include City as a guaranteed party under such guaranty, with the same protections and rights of Notice, enforcement and collection as are available to any other guaranteed party, subject to the terms of Sections 10.5.3 and 10.5.4, and deliver to City a duplicate original of such guaranty, which guaranty shall provide that the rights and protections of City shall not be reduced, waived, released or adversely affected by the acts or omissions of any other guaranteed party, other than through the rendering of payment and performance to another guaranteed party; and upon receipt of written Notice from City of the occurrence of the circumstances described in Section 10.5.3, such other documents reasonably satisfactory to City permitting City, subject to the rights of the Collateral Agent under any Direct Agreement, to become the transferee beneficiary under such guaranty and to enforce it, including enforcing the guaranty in favor of City or the Project, or both, which transfer documents shall include a certified copy of the guaranty and an executed transfer and assignment of the beneficiary rights from Non-Profit Entity or Collateral Agent, as applicable, to City; and the guaranty shall expressly authorize such transfer without condition and permit draw without presentation of the original guaranty.

10.5.3 City's rights as a transferee beneficiary are exercisable if, subject to Section 10.5.4 and the Direct Agreement, City determines that (a) a Key Contractor has breached or failed to perform any obligations under its Contract and any Notice thereof required under such Contract has been provided and the applicable cure period has expired without full and complete cure, (b) such breach has caused a NPE Default and the applicable cure period has expired without full and complete cure and (c) Non-Profit Entity, Principal Project Company or the Collateral Agent has failed to call upon or otherwise enforce such guaranty for the purpose of causing the performance of such obligations by or on behalf of the Contractor within 10 days after City delivers Notice of such NPE Default to Non-Profit Entity, Principal Project Company and the Collateral Agent and the Cure Period (as defined in the Direct Agreement) has expired.

10.5.4 So long as Non-Profit Entity, Principal Project Company or a Lender is diligently pursuing remedies under a guaranty under which City is a direct beneficiary, City agrees to forbear from (a) exercising remedies under any such guaranty that names City as a direct beneficiary, and (b) exercising its right to become a beneficiary under Section 10.5.2; provided, however, that if the NPE Default giving rise to exercise remedies under any such guaranty remains uncured at the end of the applicable cure period in Section 16.1.2 (Default Notice and

Cure Periods), City's obligation to forbear from exercising remedies as a guaranteed party shall cease. The foregoing shall not obviate any agreement by City to forbear from exercising its rights and remedies contained in a Direct Agreement.

10.6 Indemnities

10.6.1 General Indemnity

10.6.1.1 Subject to Section 10.6.3 (Limitations on Indemnification Obligations), Non-Profit Entity shall defend, indemnify, protect and hold harmless the Indemnitees from and against any and all claims, causes of action, suits, investigations, legal or administrative proceedings, demands and Losses arising out of or in connection with:

(a) any alleged or actual NPE Fault, if asserted or incurred by or awarded to any Third Party or any NPE-Related Entity;

(b) Losses to the Infrastructure Facility, and any interference, disruption, or delay to the Project occurring on or before the Final Acceptance Date, to the extent caused by or related to the work of any NPE-Related Entity in connection with the HCC;

(c) damage to public or private property owned by Third Parties (or any NPE-Related Entity), and for injuries to any person or entity, arising out of performance of the Project or Work by any NPE-Related Entity;

(d) any alleged intellectual property infringement or other allegedly improper appropriation or use of intellectual property by any NPE-Related Entity in performance of the Project or the Work, or in connection with the Infrastructure Facility;

(e) any and all claims by any governmental or taxing authority claiming taxes based on gross receipts, purchases or sales, or the use of any property or income of any NPE-Related Entity with respect to any payment for the Project or Work made to or earned by any NPE-Related Entity;

(f) the failure or alleged failure by any NPE-Related Entity to pay sums due for the Work or services of Contractors, laborers, or suppliers;

(g) any actual or threatened NPE Release;

(h) the claim or assertion by any Other Contractor or a Utility that any NPE-Related Entity (i) failed to cooperate reasonably with such party, so as to cause interference, disruption, delay or loss; or (ii) interfered with or hindered the progress or completion of work being performed by such Other Contractor or Utility, so as to cause interference, disruption, delay or loss, to the extent such claim arises out of any NPE Fault;

(i) any NPE-Related Entity's breach of or failure to perform an obligation that City owes to a Third Party, including any Governmental Entity and any Utility, under applicable Law or under any agreement between City and a Third Party,

where City has delegated performance of the obligation to Non-Profit Entity under this Agreement or the acts or omissions of any NPE-Related Entity which render City unable to perform or abide by an obligation that City owes to a Third Party, including any Governmental Entity and any Utility, under any agreement between City and a Third Party, where, in each case, the agreement was expressly disclosed or known to Non-Profit Entity;

(j) inverse condemnation, trespass, nuisance or similar taking of or harm to real property by reason of (i) the failure of any NPE-Related Entity to comply with Good Industry Practice, requirements of this Agreement, the Project Management Plan or Regulatory Approvals respecting control and mitigation of construction activities and construction impacts, (ii) the intentional misconduct or negligence of any NPE-Related Entity in connection with the performance of the Project or the Work, or (iii) the actual physical entry onto or encroachment upon another's property by any NPE-Related Entity in connection with the performance of the Project or the Work;

(k) errors or other Defects in the supply and construction (including installation) of the Project;

(l) Design Work that fails, in whole or in part, to meet the requirements of this Contract;

(m) any Non-Profit Entity failure to implement environmental mitigation measures to control environmental impacts, as required by the Governmental Approvals, the CEQA MMRP and the NEPA document; and

(n) Losses, including any costs of Refinancing and any increase in Availability Payments, arising out of or relating to, any Refinancing that occurs pursuant to clause (f) of the definition of "Exempt Refinancing" except to the extent that such Refinancing was required due to or in connection with any City Fault.

10.6.1.2 Non-Profit Entity's responsibilities pursuant to this Section 10.6.1 (General Indemnity) include both the obligation to (a) defend the Indemnitees from and against any and all claims, causes of action, suits, investigations, legal or administrative proceedings, demands and Losses, and (b) indemnify the Indemnitees when liability is sustained pursuant to the Contract Dispute Procedures or through judicial proceedings or is mutually agreed upon by the Parties.

10.6.1.3 Non-Profit Entity's indemnification shall include reasonable fees of attorneys, consultants, and experts and related costs and City's costs of investigating any claims against City. In addition to Non-Profit Entity's obligation to indemnify City, Non-Profit Entity specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to Non-Profit Entity by City and continues at all times thereafter.

10.6.1.4 Non-Profit Entity's responsibilities pursuant to this Section 10.6.1 (General Indemnity) are in addition to any right that City may have under the terms of this Agreement to assess D&C Noncompliance Points and/or D&C Period Deductions with respect to the same event or

circumstance giving rise to a Third Party claim, cause of action, suit, legal or administrative proceeding.

10.6.1.5 Non-Profit Entity's defense, indemnity, and hold harmless obligations shall extend to City's consultants (e.g., design professionals and construction managers) providing services covering any portion of the Project under a separate written agreement with City and designated in the Contract Documents as persons or entities to be listed on Non-Profit Entity's insurance policies as "Additional Insureds." Non-Profit Entity's defense, indemnity, and hold harmless obligations shall not extend to the liability of a City consultant (including architects and engineers) designated as an Indemnitee or its agents, employees, or subconsultants arising out of, connected with or resulting from such Indemnitee's own active negligence, willful misconduct, bad faith, fraud, errors or omissions or from such Indemnitee's preparation or approval of maps, plans, opinions, reports, surveys, change orders, designs or specifications, or such Indemnitee's issuance of or failure to issue directions or instructions provided that such issuance or failure to issue is the primary cause of the damage or injury.

10.6.2 Design Defects

10.6.2.1 Non-Profit Entity agrees that, because the Reference Documents are subject to review and modification by Non-Profit Entity, (a) it is appropriate for Non-Profit Entity to assume liability for errors, omissions, inconsistencies and other Defects in the completed Project even though they may be related to errors, omissions, inconsistencies and other Defects in the Reference Documents, and (b) such documents shall not be deemed "design furnished" by City or any of the other Indemnitees, as the term "design furnished" is used in Civil Code section 2782. Non-Profit Entity hereby waives the benefit (if any) of Civil Code section 2782 and agrees that this Section 10.6.2 (Design Defects) constitutes an agreement governed by Civil Code section 2782.5.

10.6.2.2 Subject to Section 10.6.3 (Limitations on Indemnification Obligations), Non-Profit Entity shall indemnify, defend and hold harmless the Indemnitees from and against any and all claims and Losses arising out of, relating to or resulting from errors, omissions, inconsistencies or other defects in the Design Documents, regardless of whether such errors, omissions, inconsistencies or other defects were also included in the Reference Documents.

10.6.3 Limitations on Indemnification Obligations

10.6.3.1 Subject to Section 23.8 (Limitation on Third Party Beneficiaries) and the releases and disclaimers herein, including all the provisions set forth in Section 5.1.3 (Limitations on Non-Profit Entity's Right to Rely), Non-Profit Entity's indemnity obligations shall not extend to any claims, suits, actions or Losses to the extent directly caused by:

(a) the active negligence, gross negligence, reckless or willful misconduct, bad faith or fraud of an Indemnitee;

(b) a City-Caused Delay Event; or

(c) City's breach of any of its obligations under the Contract Documents.

10.6.3.2 With respect to Work performed by a design professional as defined in California Civil Code section 2782.8, such indemnities shall apply only to the extent permitted by section 2782.8 as of the Effective Date.

10.6.3.3 Claims by Employees

In claims by an employee of a NPE-Related Entity, the indemnification obligation under this Section 10.6 (Indemnities) shall not be limited by any limitation on the amount or type of damages, compensation or benefits payable by or for a NPE-Related Entity under workmen's compensation, disability benefit or other employee benefits laws; provided that this provision shall not be construed as a waiver in favor of any employee by Non-Profit Entity or any Contractor of any limitation of liability afforded by such laws.

10.6.3.4 Indemnity as Alternative Cause of Action

The requirement to provide an indemnity as specified in this Section 10.6 (Indemnities) is not intended to provide City with an alternative cause of action against Non-Profit Entity for damages for breach of contract incurred directly by Indemnitees in connection with the event giving rise to the indemnification obligation.

10.6.4 Non-Profit Entity's Defense

In Non-Profit Entity's defense of Indemnitees under this Section 10.6 (Indemnities), negotiation, compromise, and settlement of any action, City shall, without prejudice to the rights of any Indemnitees to be indemnified by Non-Profit Entity, retain reasonable discretion in and control of the litigation, negotiation, compromise, settlement, and appeals therefrom.

10.7 Indemnities by Contractors

Non-Profit Entity shall ensure that each Contract includes indemnity provisions appropriate to the scope of the Work to be performed by the Contractor, naming the Indemnitees as indemnitees.

10.8 Notice of Claims by Third Parties

10.8.1 If the City receives Notice of a claim, cause of action, suit, legal or administrative proceeding covered by the indemnities in Section 10.6 (Indemnities), or otherwise has Actual Knowledge of such a claim, cause of action, suit, legal or administrative proceeding that it believes is within the scope of the indemnities under Section 10.6 (Indemnities), as soon as practicable after receipt of the claim, cause of action, suit, legal or administrative proceeding, City shall:

(a) inform Non-Profit Entity in writing of the claim, cause of action, suit, legal or administrative proceeding, and

(b) send to Non-Profit Entity a copy of all relevant written materials City has received asserting such claim, cause of action suit, legal or administrative proceeding.

10.8.2 As soon as is practicable after Non-Profit Entity receives Notice of a claim, cause of action, suit, legal or administrative proceeding covered by the indemnities in Section 10.6 (Indemnities), Non-Profit Entity shall promptly provide Notice to City in writing and, unless subject to evidentiary privilege, promptly furnish to City copies of all factual reports and factual portions of any other reports given to Non-Profit Entity's insurance carrier or carriers.

ARTICLE 11. PAYMENTS TO NON-PROFIT ENTITY

11.1 Milestone Payments

11.1.1 Subject to any limitations and exceptions expressly provided in this Agreement, City will pay each Milestone Payment to Non-Profit Entity, calculated and otherwise in accordance with the process in Exhibit 4A (Milestone Payment Mechanism).

11.2 Availability Payments

11.2.1 Subject to any limitations and exceptions expressly provided in this Agreement, City will make Availability Payments to Non-Profit Entity as provided in this Section 11.2 (Availability Payments) and Exhibit 4B (Availability Payment Mechanism).

11.2.2 City will make Availability Payments to Non-Profit Entity in accordance with Exhibit 4B (Availability Payment Mechanism).

11.2.3 Non-Profit Entity acknowledges and agrees that any Availability Payment or portion thereof not received by Non-Profit Entity as a result of a delay in achieving Substantial Completion for which Non-Profit Entity is not entitled to compensation under this Agreement represents the liquidated amount of delay damages suffered by City due to such delay.

11.3 Substantial Completion Development Fee 1

11.3.1 Subject to any limitations and exceptions expressly provided in this Agreement, City will pay Substantial Completion Development Fee 1 to Non-Profit Entity, calculated and otherwise in accordance with the process in Exhibit 4A (Milestone Payment Mechanism).

11.4 Invoice, Other Amounts and Payments

11.4.1 Prior to issuing any invoice required by this Agreement, Non-Profit Entity must submit to City a form invoice to be approved by City, and any invoice issued in accordance with this Agreement must be substantially in the form agreed by the City.

11.4.2 Non-Profit Entity shall submit an invoice (i) for the Availability Payment no later than the 10th day of the month immediately following the relevant Contract Quarter; (ii) for any other proposed payment adjustments in accordance with this Agreement, including the Milestone Payments, Compensable Delay Events, Substantial Completion Development Fee, or Termination Compensation (collectively, "**Other Amounts**") no later than the 10th day of the month immediately following the applicable event triggering such invoice, unless a different time period is set out in the Agreement for such event. All invoices shall include any supporting mathematical corrections or reconciliations to enhance the accuracy of payments due to Non-Profit Entity under this Agreement, to the satisfaction of City.

11.4.3 City shall review each properly submitted invoice within 7 days of receipt. If City, in its sole discretion, determines that the invoice is improper, the invoice will be returned to Non-Profit Entity not later than 7 days after receipt, along with a document setting forth the reasons why the invoice is not proper.

11.4.4 Unless otherwise specified in this Agreement, City will pay NPE any amount owing under this Agreement within 45 days after receipt of a properly submitted invoice for such payment.

11.5 Disputed Amounts

11.5.1 City may dispute, in good faith, any amount specified in an invoice submitted under Section 11.4 (Invoice, Other Amounts and Payments), or any other invoice submitted by Non-Profit Entity under this Agreement. City shall pay all undisputed amounts for which payment is requested and that are not subject to withholding in accordance with Section 11.4 (Invoice, Other Amounts and Payments).

11.5.2 Non-Profit Entity and City shall use reasonable efforts to resolve any invoice dispute within 30 days after the dispute arises.

11.6 Withholding from Payments

11.6.1 Without modifying City's rights to make deductions from Milestone Payment 2 in accordance with this Agreement, City may deduct from any payment owing to Non-Profit Entity under this Agreement on or before the Substantial Completion Date or make a demand of Non-Profit Entity for:

(a) any amount due and payable by Non-Profit Entity to City (whether in connection with this Agreement or any other Contract Document);

(b) any sums expended by City in performing any of Non-Profit Entity's obligations under this Agreement which Non-Profit Entity has failed to perform; and

(c) amounts in respect of any other Claim or Losses by City against Non-Profit Entity in connection with the Work or the Project.

11.6.2 The failure by City to deduct any of the sums under this Section 11.6 (Withholding from Payments) from a payment must not constitute a waiver of City's right to such sums.

11.6.3 Except as expressly set out in Section 17 and without modifying City's rights to make deductions from Milestone Payment 2 in accordance with this Agreement or exercise its rights under this Section 11.6.3, City acknowledges and agrees that it shall not deduct from any payments owing following the Substantial Completion Date. The foregoing shall not limit, modify or waive any rights or remedies City may have (i) with respect to any payment (or portion of payment) to Non-Profit Entity that is under dispute by the Parties in accordance with this Agreement, to withhold the disputed amounts from such payments until resolution of the dispute; and (ii) with respect to (A) the Performance Bond, (B) any unused amounts in any Allowance Account, (C) the Substantial Completion Development Fee, (D) any rights and remedies under the D&C Contractor Guaranty, and (E) any other collateral, warranties, guaranties or security City may have, in each case, related to the performance of obligations by Non-Profit Entity or any NPE-Related Entity under the Contract Documents after the Substantial Completion Date.

11.7 Interest on Late Payments and Overpayments

11.7.1 If Non-Profit Entity fails to pay any undisputed amount due and owing from Non-Profit Entity to the City under this Agreement, Non-Profit Entity shall pay to City interest on such amount at the Late Payment Rate commencing 90 days after the due date thereof until the date of payment.

11.7.2 If any properly submitted invoice is disputed and an amount is determined to be due under the Contract Dispute Procedures, payment of the disputed amount shall be made within 30 Business Days following resolution of the dispute, together with interest at the Late Payment Rate on the amount owing from the date that the payment was originally due (based on the agreement of the parties or the decision of the dispute resolver) until the date of payment.

11.7.3 If as a result of any inaccuracy in an invoice any overpayment is made by City to Non-Profit Entity then, in addition to the adjustments provided in Section 11.2 (Availability Payments), City shall be entitled to deduct, in accordance with Section 11.6.1 and Section 11.6.3, or receive as a payment from Non-Profit Entity interest on such amount at the Late Payment Rate, starting on the date of City's payment of the invoice to the date the overpayment is deducted or paid. City's right to deduct or receive payment of interest is without prejudice to any other rights City may have under this Agreement.

11.8 Taxes

Except as provided in Section 2.4.2 (Possessory Interest Tax), Non-Profit Entity shall pay all applicable Taxes on or before the due date (or delinquency date if applicable). Non-Profit Entity is solely responsible for and has no right to make any Claim due to its misinterpretation of laws respecting Taxes or incorrect assumptions regarding applicability of Taxes. Notwithstanding the foregoing, to the extent that City pays any California sales tax or use taxes to Non-Profit Entity under this Agreement, Non-Profit Entity shall remit such taxes to the State of California and shall promptly provide City with any information reasonably requested to verify compliance with State reporting requirements. If an exemption from applicable sales or use taxes becomes available for the Project, City shall have no obligation to reimburse Non-Profit Entity for any such taxes previously paid. Following the date such exemption becomes available, City shall be entitled to an upfront payment from Non-Profit Entity or a reduction in payments made by City, as agreed upon by the Parties, equal to the amount actually saved as a result of such exemption.

11.9 Payment Not Evidence of Approval

No payment by City is or must be construed as:

(a) evidence of the value of Work or that Work has been satisfactorily carried out in accordance with this Agreement;

(b) an admission of liability by City;

(c) approval by City of Non-Profit Entity's performance or compliance with this Agreement;

(d) acknowledgement that City has inspected or accepted the Work; or

(e) waiver of any Claim or right that City may then or thereafter have, including among others, warranty and indemnity rights.

11.10 Other Adjustments; Full Compensation

11.10.1 Non-Profit Entity acknowledges and agrees:

(a) Milestone Payment 2 and Availability Payments calculated in accordance with this Article 11 (Payments to Non-Profit Entity) and Exhibit 4 (Payment Mechanism) are subject to adjustment to reflect previous over-payments and/or under-payments, and on or before the Substantial Completion Date, any interest payable in respect of any amounts owed, and any other amount due and payable from Non-Profit Entity to City or from City to Non-Profit Entity under this Agreement, including pursuant to the D&C Noncompliance Event and D&C Period Deduction regime;

(b) Substantial Completion Development Fee is subject to adjustment as set forth in Exhibit 4 (Payment Mechanism); and

(c) that the payments provided for in this Article 11 (Payments to Non-Profit Entity) constitute full compensation for performance of all the Work, subject only to Non-Profit Entity's rights under Articles 12 (City Change Process; Unilateral Change Orders; Deviations), 13 (General Provisions Applying to Delay Events), 14 (Compensation and Other Relief for Delay Events) and 17 (Termination).

11.10.2 Residual Funds Adjustment

(a) On the date that is 90 days prior to the Payment Commencement Date, Non-Profit Entity shall provide City with a statement setting forth all funds in the Project accounts that are not reasonably anticipated at that time to be required by Non-Profit Entity to pay Project costs (including return of any cash retention to the D&C Contractor), pay debt service, or maintain compliance with all requirements in the Financing Documents (the "D&C Period Residual Amounts"). Such D&C Period Residual Amounts shall be certified by the Collateral Agent pursuant to the Financing Documents over the balance of the Term based on receipt of a certificate from the LTA. Subject to Non-Profit Entity obtaining a written opinion of bond counsel that such actions will not adversely affect the tax-exempt status of the bonds, in the Non-Profit Entity's first Availability Payment invoice, Non-Profit Entity shall reduce the amount of the first Availability Payment in accordance with Section 1.4.2 of Exhibit 4B (Availability Payment Mechanism).

(b) Within 90 days after full and complete discharge of the bonds, Non-Profit Entity shall pay City any remaining amounts in the Project accounts, less any funds that are reasonably anticipated to be required to pay Project costs.

11.11 Appropriation; Certification of Funds

11.11.1 All payments due from City to Non-Profit Entity under this Agreement, including any Termination Compensation, shall be paid solely from monies made available to City from an appropriation of funds for the purpose of making all such payments coming due in such fiscal year. No payment obligation under this Agreement shall constitute a general obligation of the City and County of San Francisco or a pledge of its general funds. SFMTA, or the San Francisco Board of Supervisors, as applicable, shall have the absolute and unconditional right, to be exercised in their discretion, for any reason, not to appropriate such funds.

11.11.2 This Agreement is subject to the fiscal provisions of the City's Charter and the budget decisions of its Mayor and Board of Supervisors, each acting in its sole discretion. No funds will be available hereunder until prior written authorization certified by the City's Controller. The City's Controller cannot authorize payments unless funds have been certified as available in the budget or in a supplemental appropriation. City shall use commercially reasonable efforts to obtain the certification from the City's Controller if the funds have been appropriated for such purpose. Without prejudice to Non-Profit Entity's rights and remedies as set forth in this Agreement for unexcused and undisputed non-payment by City of any payment due Non-Profit Entity when due, City's obligations hereunder shall never exceed the amount certified by the City's Controller for the purpose and period stated in such certification. City, its employees and officers are not authorized to offer or promise any additional funding without City's Controller certification of such additional funding. Without such lawful approval and certification, City shall not be required to provide such additional funding.

11.11.3 City shall:

(a) make a timely submission for (i) the fiscal year in which the Substantial Completion Deadline is scheduled to occur of a budget proposal to the SFMTA Board of Directors requesting a budget that includes Milestone Payment 2A and initial APC_{DC} and (ii) the fiscal year in which Substantial Completion of the Infrastructure Facility will occur of a budget proposal to the SFMTA Board of Directors requesting a budget that includes Milestone Payment 2B and initial APC_{Base};

(b) for each fiscal year beyond the fiscal year in which the initial Availability Payment is made, make a timely submission of a budget proposal to the SFMTA Board of Directors requesting a budget for each and every Availability Payment, including any subsequent change to the Availability Payment; and

(c) request an appropriation of funds for the purpose of paying any Termination Payment payable by City or any other amount due from City under this Agreement other than the Availability Payments.

11.11.4 City shall respond promptly in writing to any reasonable written request submitted by Non-Profit Entity for information regarding the status of any request City is obligated to make under Section 11.11.3.

11.11.5 If City fails to appropriate money to make a Termination Payment, there shall be no contractual obligation of the City to make such payment that may be enforced; such contractual

payment obligation shall arise only if and when any such amounts have been appropriated by City.

11.11.6 City shall provide written Notice to Non-Profit Entity no later than ten Business Days following the enactment of any City budget with respect to a particular Fiscal Year that does not make an appropriation of funds for the purpose of paying the scheduled Availability Payments or Milestone Payment 2 due for such Fiscal Year. City shall consult with Non-Profit Entity to discuss the situation and the possible solutions, it being understood that such discussions shall be without prejudice to Non-Profit Entity's right to termination for unexcused and undisputed non-payment by City of any payment due Non-Profit Entity when due, as set forth in Section 17.4.1 (Termination for City Default).

11.11.7 The obligation of City to make any payments under this Agreement does not constitute a debt of the City under applicable Law and does not constitute a liability of or a lien or charge upon the funds or property of the City beyond the fiscal year for which there has been an appropriation of funds to make such payments. The obligation of City to make payments hereunder does not constitute an obligation of City for which City is obligated to levy or pledge any form of taxation or for which City has levied or pledged any form of taxation.

11.12 Allowances

11.12.1 Allowances, Generally

(a) Each of the Allowances is available to pay for certain portions of the D&C Work, with amounts from the Allowance to be used on the basis identified with respect to each such Allowance under this Section 11.12 (Allowances) and otherwise consistent with Exhibit 13 (Costs Schedule).

(b) Non-Profit Entity shall be entitled to use:

(i) the Office/Admin and Training Spaces FF&E Allowance for design, procurement, purchase and installation of Office/Admin and Training Spaces FF&E as set forth in Section 11.12.1 and 11.12.2;

(ii) the Partnering Allowance for Partnering as set forth in Section 11.12.1 and Section 11.12.8;

(iii) the Undergrounding Existing PG&E Power Lines Allowance for Undergrounding Existing PG&E Power Line Work as set forth in Section 11.12.1 and Section 11.12.5;

(iv) the New PG&E Service Allowance for New PG&E Service Work as set forth in Section 11.12.1 and Section 11.12.6;

(v) the Exterior OCS Work Allowance for cost and expenses for Work associated with the temporary removal and new OCS installation outside of the Project Site, as set forth in Section 11.12.1 and Section 11.12.7; and

(vi) the Interior OCS Work Allowance for cost and expenses of Interior OCS Work as set forth in Section 11.12.1 and Section 11.12.9; provided; however, that the Interior OCS Work Allowance may not be used for any design work.

(together the "Non-Profit Entity Allowances").

(c) City shall be entitled to draw from the City-Furnished IT/Comms Allowance for amounts incurred with respect to procurement, purchase and installation of the IT/Comms Equipment as set out in Section 11.12.3. To the extent that City directs Non-Profit Entity to procure, purchase or install any City-Furnished IT/Comms FF&E, the provisions applying to the Non-Profit-Entity Allowance Values shall apply the City-Furnished IT/Comms FF&E Allowance.

(d) Non-Profit-Entity and City shall:

(i) collaborate in good faith to review the amount proposed for the Allowances, other than the Partnering Allowance, based on design information as it progresses to confirm that the Allowance values constitute reasonable estimates for the Work the subject of each Allowance;

(ii) upon 100% DD as described in Section 1.8.5 (Proprietary Design Review) of Division 1 of the Technical Requirements, negotiate in good faith to agree on revised fixed Allowance values; and

(iii) further prepare the design to develop Construction Documents consistent with the Allowance values.

(e) Except as set out in Section 11.12.1(d)(ii) and 11.12.1(h), Non-Profit Entity acknowledges and agrees that:

(i) the Milestone Payments and the Availability Payment include the Allowances and, in the case of the Non-Profit Entity Allowances, represent full compensation to Non-Profit Entity on account of the Non-Profit Entity Allowances; and

(ii) except as otherwise expressly set out in this Agreement, all costs, including design fees and overhead for the Work covered by the Allowances are included in the Allowances and the Allowances are not subject to adjustment after being fixed pursuant to Section 11.12.1(d)(ii), regardless of the actual costs of the Allowance Item or Work.

(f) Intentionally Omitted.

(g) Without limiting Section 11.12.1(j), if the revised amount for an Allowance determined under Section 11.12.1(d) is greater than the applicable original Allowance value, Section 7.2 of the Costs Schedule (Exhibit 13) shall apply. If the revised amount for an Allowance determined under Section 11.12.1(d) is

less than the applicable original Allowance value, the unused amounts shall be released to the City pursuant to Section 11.13.4).

(h) Once the Allowances are fixed under Section 11.12.1(d)(ii), Non-Profit Entity agrees that the Milestone Payments and Availability Payment will not be subject to adjustment for any Work which is the subject of Allowances, except as otherwise expressly set out in this Agreement.

(i) Prior to fixing the Allowances under Section 11.12.1(d)(ii), Non-Profit Entity shall keep detailed records of the quantities, units, or other agreed metrics with respect to the Allowances and shall submit to City supporting documentation of such quantities as part of its monthly progress reports, and such other information as City may require, in its sole discretion.

(j) Notwithstanding that the Allowances have been developed for specific elements of the D&C Work, prior to fixing the Allowances under Section 11.12.1(d)(ii), City, in its sole discretion, may elect to use some or all of any Allowance as a source of payment for D&C Work for which Non-Profit Entity may be entitled under another Allowance or in connection with a Compensable Delay Event.

(k) No Change Order is required to complete Work within any Allowance and Non-Profit Entity may use the initial Allowances prior to fixing the Allowances under Section 11.12.1(d)(ii).

11.12.2 Office/Admin and Training Spaces FF&E Allowance

Non-Profit Entity shall be eligible to use the Office/Admin and Training Spaces FF&E Allowance to address City-approved Office/Admin and Training Spaces FF&E, as set forth herein.

(a) The Office/Admin and Training Spaces FF&E Allowance shall be in an initial amount of $6,220,000 and subject to adjustment under Section 11.12.1(d).

(b) The Office/Admin and Training Spaces FF&E Allowance shall be used for design, procurement, purchase and installation of Office/Admin and Training Spaces FF&E.

(c) For all Office/Admin and Training Spaces FF&E, prior to 50% Conceptual Design as described in Section 1.8.5 (Proprietary Design Review) of Division 1 of the Technical Requirements Non-Profit Entity shall obtain at least three arms-length competitive price quotes (or, if Non-Profit Entity believes it is impractical to obtain such number of competitive price quotes, Non-Profit Entity may submit a request for waiver or modification of the competitive price quote requirement to City, which shall consider such request in its good faith discretion).

(d) This Section 11.11.2 (Office/Admin and Training Spaces FF&E Allowance) shall not apply to, and the Office/Admin and Training Spaces FF&E Allowance shall not be useable for, repair and replacement of Office/Admin and Training

Spaces FF&E that is damaged, defective or missing prior to Substantial Completion.

11.12.3 City-Furnished IT/Comms Allowance

City shall be eligible to (i) draw against the City-Furnished IT/Comms Allowance for City-Furnished IT/Comms FF&E; or (ii) direct Non-Profit Entity to procure and install such FF&E in which case Non-Profit Entity shall be eligible to invoice against the Office/Admin and Training Spaces FF&E Allowance to address City-approved Office/Admin and Training Spaces FF&E, each as set forth herein.

(a) The City-Furnished IT/Comms Allowance shall be in an initial amount of $2,850,000.

(b) The City-Furnished IT/Comms Allowance is to be used for City-Furnished IT/Comms FF&E.

11.12.4 Intentionally Omitted.

11.12.5 Underground Existing PG&E Power Line Allowance

The Party making payment to PG&E for the Underground Existing PG&E Power Line Work shall be eligible to use the Underground Existing PG&E Power Line Allowance as set forth herein.

(a) The Underground Existing PG&E Power Line Allowance shall be in an initial amount of $2,624,043 and subject to adjustment under Section 11.12.1(d).

(b) The Underground Existing PG&E Power Line Allowance is to be used for payment for PG&E's portion of the Underground Existing PG&E Power Line Work costs and expenses.

(c) The Underground Existing PG&E Power Line Allowance shall also be subject to adjustment if PG&E incurs additional direct costs to perform PG&E's portion of such work for which PG&E is entitled to payment pursuant to the agreement for such work between Non-Profit Entity and PG&E (or an agreement for such work between City and PG&E, if applicable).

11.12.6 New PG&E Service Allowance

Non-Profit Entity and City (to the extent City is making payment for PG&E's portion of the New PG&E Service costs) shall be eligible to use the New PG&E Service Allowance as set forth herein.

(a) The New PG&E Service Allowance shall be in an initial amount of $13,869,877 and subject to adjustment under Section 11.12.1(d).

(b) The New PG&E Service Allowance is to be used for New PG&E Service costs and expenses.

(c) The New PG&E Service Allowance shall also be subject to adjustment if PG&E incurs additional direct costs to perform PG&E's portion of such work

for which PG&E is entitled to payment pursuant to the agreement for such work between PG&E and City.

11.12.7 Exterior OCS Work Allowance

Non-Profit Entity shall be eligible to use the Exterior OCS Work Allowance as set forth herein.

(a) The Exterior OCS Work Allowance shall be in an initial amount of $8,040,000 and subject to adjustment under Section 11.12.1(d).

(b) The Exterior OCS Work Allowance is to be used for cost and expenses for Work associated with the temporary removal and new OCS installation outside of the Project Site.

11.12.8 Partnering Allowance

Non-Profit Entity shall be eligible to use the Partnering Allowance, as set forth herein.

(a) The Partnering Allowance shall be in an initial amount of $250,000 and subject to adjustment under Section 11.12.1(d).

(b) The Partnering Allowance is to be used for Partnering costs and expenses incurred by the City and PPC.

11.12.9 Interior OCS Work Allowance

Non-Profit Entity shall be eligible to use the Interior OCS Work Allowance as set forth herein.

(a) The Interior OCS Work Allowance shall be in an initial amount of $18,000,000 and subject to adjustment under Section 11.12.1(d).

(b) The Interior OCS Work Allowance is to be used for Interior OCS Work costs and expenses.

(c) For all Interior OCS Work to be paid for by the Interior OCS Work Allowance (excepting design work relating thereto), upon 100% DD obtain, or cause its electrical Contractor to obtain, at least three arms-length competitive price proposals and present them to the City (or, if Non-Profit Entity reasonably believes it is commercially impractical to obtain such number of competitive price proposals, Non-Profit Entity may submit a request for waiver or modification of the competitive price proposal requirement to City, which shall consider such request in its good faith discretion).

11.13 Allowance Accounts

11.13.1 Allowance Accounts Generally

On or before the Financial Close Date, Non-Profit Entity shall establish with the Collateral Agent allowance accounts for each of the Allowances set forth in Section 11.12.2 through Section 11.12.8 (each an "**Allowance Account**") and shall fund each Allowance Account in the amounts set forth above. Non-Profit Entity shall provide to City the details regarding the Allowance

Accounts, including the names, addresses, and contact information for the Collateral Agent and the account numbers, as well as confirmation and evidence of City's security interest created pursuant to this Section. Changes in an Allowance Account shall require City prior approval other than with respect to changes to the names, addresses, and contact information for the Collateral Agent and the account numbers, which shall only require Notice to City. The effective date of such change shall apply immediately upon City approval or written Notice, as applicable. City shall have a priority perfected security interest in each Allowance Account, and the right to receive monthly account statements directly from the Collateral Agent. Non-Profit Entity shall deliver such notices to the Collateral Agent and shall execute such documents as may be required to establish and perfect City's interest in the Allowance Accounts under the Uniform Commercial Code as adopted in the State. Any interest earned on funds held in the Allowance Accounts shall be earned on behalf of Non-Profit Entity, and Non-Profit Entity shall be entitled to draw on such interest earned to pay Project costs without notice to City (other than pursuant to the disbursement process set forth in this Section 11.13); provided, however, that all accrued interest remaining in the Allowance Accounts upon the earlier of the Early Termination Date (if applicable) and the Substantial Completion Date, shall be the property of City and distributed pursuant to Section 11.13.4.

11.13.2 Disbursements from Non-Profit Entity Allowance Accounts

The disbursement process applicable to the Non-Profit Entity Allowance Accounts is as follows:

(a) Except as set forth in Section 11.13.3 or Section 11.13.4 with respect to disbursements to City, Non-Profit Entity shall provide City with written notice of any request to withdraw funds from any of the Allowance Accounts (an "**Allowance Account Disbursement Notice**"). As part of such written notice, Non-Profit Entity shall provide City with the LTA's approval of the D&C Contractor's applicable payment application evidencing the D&C Work completed that is the subject of the Allowance Account Disbursement Notice that is being submitted.

(b) Subject to Section 11.13.2(c), the LTA's approval the D&C Contractor's applicable payment application will be accepted by City for purposes of disbursements from the Allowance Accounts, provided that the LTA has exercised reasonable skill and care in determining the value of work done and associated payment amount, and will not be subject to further rights of approval of or modification by City.

(c) City shall, within ten (10) Business Days of a receipt of an Allowance Account Disbursement Notice, advise Non-Profit Entity, in writing, whether City disputes any amount in such notice (a "**City Allowance Account Dispute Determination**"). City may only dispute an Allowance Account Disbursement Notice if it reasonably believes that the LTA did not exercise the requisite skill and care provided in Section 11.13.2(b). Such dispute and payment shall be subject to resolution under the Contract Dispute Procedures. If City does not timely provide Non-Profit Entity a City Allowance Account Dispute Determination, City shall be deemed to have not disputed such Allowance Account Disbursement Notice.

(d) If City does not dispute an Allowance Account Disbursement Notice under Section 11.13.2(c), Non-Profit Entity shall submit to the Collateral Agent (with a copy to City) the Allowance Account Disbursement Notice and the Collateral Agent shall disburse funds from the Allowance Accounts in accordance with the Financing Documents.

11.13.3 Disbursement from City-Furnished IT/Comms Allowance and Partnering Allowance

(a) If City elects to invoice against the City-Furnished IT/Comms Allowance for City-Furnished IT/Comms FF&E or against the Partnering Allowance, it may do so and receive a disbursement from such Allowance Accounts without written approval from Non-Profit Entity upon written notice to the Collateral Agent (with a copy to Non-Profit Entity). If City directs Non-Profit Entity to procure and install such FF&E, the disbursement process set forth in Section 11.13.2 shall apply.

(b) To the extent that City makes payment to PG&E for PG&E's portion of the Underground Existing PG&E Power Line Work costs pursuant to Section 11.12.5, City may invoice against the Underground Existing PG&E Power Line Allowance and receive a disbursement from such Allowance Account without written approval from Non-Profit Entity upon written notice to the Collateral Agent (with a copy to Non-Profit Entity).

(c) To the extent that City makes payment to PG&E for PG&E's portion of the PG&E New Service costs pursuant to Section 11.12.6, City may invoice against the PG&E New Service Allowance and receive a disbursement from such Allowance Account without written approval from Non-Profit Entity upon written notice to the Collateral Agent (with a copy to Non-Profit Entity).

11.13.4 Release of Unused Allowance Account Amounts

Upon the earlier of the Early Termination Date (if applicable) and the Substantial Completion Date, all amounts in the Allowance Accounts, including any accrued interest, shall be drawn and retained by City as its sole property, excluding any amounts that have not yet been disbursed but are payable to Non-Profit Entity pursuant to this Section 11.13 for completed D&C Work at such time.

ARTICLE 12. CITY CHANGE PROCESS; UNILATERAL CHANGE ORDERS; DEVIATIONS

12.1 General

Exhibit 9 (Change Procedures) sets out the process with respect to (a) Change Orders issued by City following a Proposed Change Order request by City; (b) Unilateral Change Orders unilaterally issued by City; and (c) Change Orders issued by City following a NPE Change Request.

12.2 City Changes

12.2.1 Subject to Section 12.2.2 and in accordance with the procedure set forth in Exhibit 9 (Change Procedures), City may at any time make changes to the Work, including additions or reductions in the scope of the D&C Work, or changes to the requirements applicable to the Work, as it may direct in its sole discretion (each, a "**City Change**").

12.2.2 Non-Profit Entity shall not be required to implement any City Change to the extent the City Change would:

(a) result in a breach of Law, a breach of Good Industry Practice or a breach of any conditions of a Regulatory Approval or revocation of any Regulatory Approval;

(b) require a new Regulatory Approval which would not be reasonably obtainable;

(c) render any Insurance Policy void or voidable;

(d) materially and adversely affect the health and safety of any person; or

(e) materially and adversely affect the nature of the Project as a whole, such that the City Change would constitute a cardinal change under California law.

Non-Profit Entity acknowledges that a City Change relating to the HCC would not fall under clause (e).

12.3 Bonds and Insurance for Change Orders

If the cost of the D&C Work is increased in connection with a Change Order, City may require a corresponding proportionate increase in the amount of insurance and/or any D&C Performance Security, new D&C Performance Security, or alternative security to cover the Change Order work and increase in cost.

ARTICLE 13. GENERAL PROVISIONS APPLYING TO DELAY EVENTS

13.1 Interface with HCC

Without derogating from City's covenant in Section 7.15, Non-Profit Entity acknowledges and agrees that, to the extent any NPE-Related Entity is involved in the development, design and construction of the HCC, then:

(a) any interference or delay in the performance of the D&C Work or damage affecting the Infrastructure Facility, in each case, caused in whole or in part by such NPE-Related Entity, shall be entirely Non-Profit Entity's responsibility and liability;

(b) Non-Profit Entity shall not make any Claim for, and shall not receive or be entitled to, any additional compensation, time extensions, or relief from its obligations under this Agreement for any delay, additional costs, or failure to perform due to Losses, interference, delay, or damage caused in whole or in part by or in any way related to the HCC;

(c) City shall have no liability or responsibility to Non-Profit Entity for any Losses, interference, delay, or damage incurred or suffered by Non-Profit Entity or any NPE-Related Entity with respect to the Infrastructure Facility, including the D&C Work, that is in any way related to or arising out of the HCC; and

(d) City shall continue to enforce all of City's rights and remedies under this Agreement in circumstances where Non-Profit Entity cannot perform its obligations hereunder due to any Losses, interference, delay, or damage, to the extent caused by any NPE-Related Entity in connection with the HCC, including City's rights to assess and collect D&C Period Deductions, declare a NPE Default, declare a Persistent NPE Default and terminate this Agreement.

13.2 Delay Event Process

13.2.1 If a Delay Event occurs, subject to the limitations and exclusions provided in this Agreement, Non-Profit Entity may seek additional compensation, time extension, and/or other relief, if applicable, in accordance with the entitlements specified in Article 14 (Compensation and Other Relief for Delay Events).

13.2.2 The agreement of the Parties as to the specific compensation, time extension, or other relief to be given Non-Profit Entity on account of a Delay Event shall be evidenced by a written amendment or Change Order to this Agreement.

13.2.3 Either Party may initiate the Contract Dispute Procedures if:

(a) the Parties are unable to agree as to the specific compensation, time extension, or other relief to be given Non-Profit Entity on account of an alleged Delay Event; or

(b) City rejects the Delay Event claim.

13.3 Mitigation

13.3.1 If a Delay Event or any other event occurs as a result of which Non-Profit Entity considers that it is entitled to claim an extension of time, compensation or relief from performance of its obligations under this Agreement (together "**Relevant Events**"), then Non-Profit Entity shall, and shall require all NPE-Related Entities to, use and continue to use commercially reasonable efforts to:

(a) Eliminate or mitigate the liability, Losses, schedule impact and other consequences of such event upon the performance of its obligations under this Agreement, including by re-sequencing, rescheduling, reallocating or redeploying Non-Profit Entity forces to other work, as appropriate;

(b) Continue to perform and remain liable and responsible for its obligations under this Agreement notwithstanding the Relevant Event; and

(c) Resume performance of its obligations under this Agreement affected by the Relevant Event as soon as practicable and in no event later than promptly after the cessation of the Relevant Event.

13.3.2 To the extent that Non-Profit Entity does not comply with its obligations under this Section 13.3 (Mitigation), then Non-Profit Entity's entitlement to claim an extension of time, compensation or relief from performance of its obligations under this Agreement with respect to the Relevant Event will be reduced to the extent of such failure.

13.4 Deductions for Relevant Events

The compensation payable to Non-Profit Entity with respect to any Relevant Event will be reduced by:

(a) any amount which a NPE-Related Entity recovers under any Insurance Policy, or would have recovered if it had complied with the requirements of this Agreement in respect of any Insurance Policy in respect of the Relevant Event, which amount, for greater certainty, will not include any excess or deductibles or any amount over the maximum amount insured under any such Insurance Policy; and

(b) the amount of any Extra Work Costs, other direct costs and margins calculated in accordance with Exhibit 13 (Costs Schedule) avoided or otherwise reduced as a result of the Relevant Event.

13.5 Acts of a NPE-Related Entity

Non-Profit Entity's entitlement to claim an extension of time, compensation or relief from performance of its obligations under this Agreement with respect to any Relevant Event will be reduced to the extent the Relevant Event arises out of, relates to or was caused or contributed to by the acts or omissions of any NPE-Related Entity or any NPE Fault.

13.6 Notification; Delay in Notification

Non-Profit Entity shall provide Notice as provided in Section 14.1.1 (Claim for Delay Event) with respect to Delay Events and as provided in accordance with this Agreement with respect to all other Relevant Events.

13.7 Multiple and Overlapping Claims

Non-Profit Entity may make multiple but not duplicative Claims with respect to a Relevant Event.

13.8 Burden of Proof and Mitigation

Non-Profit Entity bears the burden of proof in establishing (a) the occurrence of a Relevant Event and (b) the entitlement to, and amount of, relief for such Relevant Event, including demonstrating that Non-Profit Entity complied with its mitigation obligations under Section 13.3 (Mitigation).

13.9 Sole Entitlement

Non-Profit Entity acknowledges and agrees that:

(a) Subject to the express terms of this Agreement, the Milestone Payments, Substantial Completion Development Fee and Availability Payments constitute full compensation for performance of all of the Work; and

(b) Non-Profit Entity's sole right to claim an extension of time, compensation or relief from performance of its obligations under this Agreement or otherwise make any Claim for any liability in connection with a Delay Event is as set out in Article 13 (General Provisions Applying to Delay Events) and Article 14 (Compensation and Other Relief for Delay Events).

13.10 Compensation

City will pay the compensation due to Non-Profit Entity under Article 13 (General Provisions Applying to Delay Events) and Article 14 (Compensation and Other Relief for Delay Events) in accordance with Exhibit 13 (Costs Schedule).

13.11 Waiver

As a condition precedent to City's obligation to pay any compensation, grant an extension of time or provide any other relief to fully resolve or address a Delay Event, Non-Profit Entity shall, unless the Parties otherwise agree in writing, execute a full, unconditional, irrevocable waiver and release, in favor of and in a form reasonably acceptable to City, of any other Claims, Losses or rights to relief arising out of such Delay Event that is not the subject of a Contract Dispute.

ARTICLE 14. COMPENSATION AND OTHER RELIEF FOR DELAY EVENTS

14.1 Relief During the D&C Period

This Section 14.1 (Relief During the D&C Period) sets out Non-Profit Entity's sole entitlement to an extension of time, Extra Work Costs, Financing Delay Costs and Delay Costs (as applicable) as a result of Delay Events. Non-Profit Entity's entitlement to relief and compensation under this Section 14.1 (Relief During the D&C Period) is subject to the limitations on compensation in Section 6.3.8 (Major Approval Delay) in the case of Major Approval Delay, Section 7.6.9 (Inaccurate Utility Information) in the case of Inaccurate Utility Information, Section 7.6.13 (Major Utility Adjustments) in the case of Major Utility Adjustments), Section 7.6.16 (Claims for Unidentified Offsite Utilities) in the case of Unidentified Early Offsite Utility Delay or Unidentified Late Offsite Utility Delay (as applicable), Section 7.6.17 (PG&E Offsite Utility Delays) in the case of PG&E Offsite Utility Delays, Article 13 (General Provisions Applying to Delay Events and Relief Events), Exhibit 13 (Costs Schedule), and this Agreement.

14.1.1 Claim for Delay Event

14.1.1.1 Non-Profit Entity shall provide Notice to City's Authorized Representative within 30 days of obtaining Actual Knowledge of the occurrence of Delay Event (or, if earlier, on such date that Non-Profit Entity should have discovered such Delay Event if Non-Profit Entity was in full compliance with the terms of the Contract Documents). Failure to do so shall result in a waiver of and forfeiture of any relief, compensation or time extension related to the event or occurrence.

14.1.1.2 Non-Profit Entity shall, within 10 Business Days after such initial Notice, provide further details to City's Authorized Representative, which shall, to the extent Non-Profit Entity has obtained Actual Knowledge, include:

(a) A summary of the provisions of this Agreement that entitle Non-Profit Entity to relief. If Non-Profit Entity seeks relief for City's alleged breach of this Agreement, then Non-Profit Entity shall identify the provisions of this Agreement which allegedly have been breached and the actions or failures to act constituting such breach;

(b) Details of the Delay Event, the circumstances from which the Delay Event arises including its nature, the date of its occurrence, its duration (to the extent that the Delay Event and the effects thereof have ceased or estimated duration to the extent that the Delay Event and the effects thereof have not ceased), the portions of the Infrastructure Facility affected;

(c) Details of the contemporary records which Non-Profit Entity shall maintain to substantiate its claim for extra time and the substance of any oral communications, if any, relating to the Delay Event and the name of the person or persons making such material oral communications;

(d) Analysis of consequences (whether direct or indirect, financial or non-financial) the Delay Event may have upon achieving the Substantial Completion Date or the Final Acceptance Date, as applicable, including a TIA indicating all activities represented or affected by the change, with activity

numbers, durations, predecessor and successor activities, resources and cost, and with a narrative report, in form satisfactory to City, which compares the proposed new schedule to the Project Schedule, as appropriate. Non-Profit Entity shall reschedule activities not otherwise affected by the event, in order to take advantage of additional Float available as the result of the time extension. Any such rescheduling shall be reflected in the Project Schedule;

(e) Where the Delay Event is also a Compensable Delay Event, an itemized estimate of all amounts claimed under Section 14.1.1 (Claim for Delay Event). Extra Work Costs and Delay Costs (as applicable) and Financing Delay Costs shall be broken down in accordance with Exhibit 13 (Costs Schedule);

(f) Where this Agreement expressly allows for compensation for Delay Costs, an itemized estimate of all amounts claimed (and the Section of the Agreement authorizing such Delay Costs), computed using the full days of the claimed delay multiplied by the Daily Delay Cost Amount or portion of the Daily Delay Cost Amount allowed under this Agreement;

(g) Where the Delay Event is also an Unavoidable Delay Event, an itemized estimate of any Financing Delay Costs claimed under Sections 14.1.6 or 14.1.7 (Additional Limits Relating to Force Majeure Events or Unavoidable Delay Events During D&C Period) broken down in accordance with Exhibit 13 (Costs Schedule);

(h) The type and amount of insurance that may be applicable and amounts that have been or are anticipated to be collected under such insurance; and

(i) Details of any measures that Non-Profit Entity has taken to date and proposes to adopt to mitigate the consequences of such Delay Event in accordance with Section 13.3 (Mitigation).

14.1.1.3 Within 7 days of Non-Profit Entity receiving, or becoming aware of, any supplemental information which may further substantiate or support Non-Profit Entity's Claim, Non-Profit Entity shall submit further particulars based on such information to City's Authorized Representative.

14.1.1.4 City's Authorized Representative shall, after receipt of details under Section 14.1.1.2, or of further particulars under Section 14.1.1.3, be entitled by Notice to Non-Profit Entity to require that Non-Profit Entity provide such further supporting particulars as City's Authorized Representative may reasonably consider necessary. Non-Profit Entity shall provide City's Authorized Representative full access and facilities for investigating and assessing the validity of Non-Profit Entity's Claim, including, on-site inspection.

14.1.1.5 Non-Profit Entity shall provide City with monthly updates, together with further details and supporting documentation, as it receives or develops additional information pertaining to the Delay Event and the matters described in Section 14.1.1.2 Without limiting the foregoing, Non-Profit Entity shall notify City as soon as the Delay Event has ceased and when performance of its affected obligations can be resumed.

14.1.2 Extension of Deadlines for Delay Events

14.1.2.1 Except as provided in Section 14.1.3, upon the occurrence of a Delay Event, Non-Profit Entity shall be entitled to an extension of the Contract Deadlines equal to the delay to the Critical Path directly caused by the Delay Event.

14.1.2.2 City's Authorized Representative shall determine revised Contract Deadlines arising out of a Delay Event, as soon as reasonably practicable and in any event within 30 days of the later of:

(a) The date of receipt by City's Authorized Representative of Non-Profit Entity's Notice given in accordance with Section 14.1.1.1 and the date of receipt of any further particulars (if such are required under Section 14.1.1.2 or Section 14.1.1.3), whichever is later; and

(b) The date of receipt by City's Authorized Representative of any supplemental information supplied by Non-Profit Entity in accordance with Section 14.1.1.3 (if such are required under Section 14.1.1.4), whichever is later.

14.1.3 Concurrent Delays

(a) If Non-Profit Entity has made a Claim for an extension of time in accordance with Section 14.1.2 (Extension of Deadlines for General Delay Events) which is caused by City Fault and there is another unrelated delay to a Critical Path for which a NPE-Related Entity is responsible under this Agreement, Non-Profit Entity shall remain entitled to an extension of time to the Substantial Completion Deadline or Final Acceptance Deadline, as applicable, in accordance with, and subject to, Section 14.1.2 (Extension of Deadlines for General Delay Events), but shall not be entitled to any compensation or monetary relief associated with such extension of time or Claim.

(b) Subject to Section 14.1.3(c), if Non-Profit Entity has made a Claim for an extension of time in accordance with Section 14.1.2 (Extension of Deadlines for General Delay Events) which is not caused by City Fault and there is another unrelated delay to a Critical Path for which a NPE-Related Entity is responsible under this Agreement, Non-Profit Entity shall not be entitled to an extension of time to the Substantial Completion Deadline or Final Acceptance Deadline, as applicable, to the extent and for so long as the Delay Event is concurrent with any other unrelated delay to a Critical Path for which any NPE-Related Entity is responsible under this Agreement.

(c) If two PG&E Offsite Utility Delays occur that are concurrent with each other but are not concurrent with any other delay, then the period of concurrent delay shall be considered a PG&E Offsite Utility Delay. If two Major Utility Adjustment Delays occur that are concurrent with each other but are not concurrent with any other delay, then the period of concurrent delay shall be considered a Major Utility Adjustment Delay.

14.1.4 Costs Payable for Compensable Delay Events

Subject to the limitations on compensation in Article 13 (General Provisions Applying to Delay Events), this Section 14.1 (Relief During the D&C Period) and Exhibit 4 (Payment Mechanism), if a Compensable Delay Event occurs, City shall reimburse Non-Profit Entity for:

(a) Extra Work Costs calculated in accordance with Exhibit 13 (Costs Schedule) directly attributable to the Compensable Delay Event (excluding Major Approval Delay, Major Utility Adjustment Delay and PG&E Offsite Utility Delay);

(b) Delay Costs:

(i) calculated at the Daily Delay Cost Amount for each full day of delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) for a City-Caused Delay Event;

(ii) calculated at 50% of the Daily Delay Cost Amount for each full day of delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) for Inaccurate Utility Information, Unidentified Early Offsite Delay Events or Unidentified Late Offsite Utility Delay(as applicable);

(iii) calculated at the Daily Delay Cost Amount for each full day of delay beyond the Major Approval Deadline in the case of a Major Approval Delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events);

(iv) calculated at 50% of the Daily Delay Cost Amount for each full day of delay beyond the beyond the Major Utility Adjustment Deadline in the case of a Major Utility Adjustment Delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events);

(v) calculated at 50% of the Daily Delay Cost Amount for each full day of delay beyond the beyond the PG&E in the case of a PG&E Offsite Utility Delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events);

(vi) calculated at 50% of the Daily Delay Cost Amount for each full day of delay for which an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) for an event covered by clause (p) of the definition of “Compensable Delay Event”; and

(c) Financing Delay Costs calculated in accordance with Exhibit 13 (Costs Schedule) but only where an extension of time is granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) for the Compensable Delay Event and Non-Profit Entity is unable to achieve Substantial Completion by the original Substantial Completion Deadline.

14.1.5 Additional Limits Relating to Hazardous Materials Event During D&C Period

If a Delay Event is a Hazardous Materials Event, no compensation or time relief shall be provided for ((i) once Non-Profit Entity obtains Actual Knowledge of the Hazardous Materials (or should have discovered such Hazardous Materials if Non-Profit Entity was in full compliance with the terms of the Contract Documents), any Hazardous Materials that could have been reasonably avoided by use of available construction techniques or incorporation of anticipated or minor design changes which are consistent with Good Industry Practice; (ii) once Non-Profit Entity obtains Actual Knowledge of the Hazardous Materials (or should have discovered such Hazardous Materials if Non-Profit Entity was in full compliance with the terms of the Contract Documents, including by performing a Reasonable Investigation), any Hazardous Materials encountered, to the extent Non-Profit Entity is required and failed to manage or mitigate against the risk of such Hazardous Materials in accordance with this Agreement; and (iii) once Non-Profit Entity obtains Actual Knowledge of the Hazardous Materials (or should have discovered such Hazardous Materials if Non-Profit Entity was in full compliance with the terms of the Contract Documents, including by performing a Reasonable Investigation), any Hazardous Materials encountered, to the extent a contractor, acting in accordance with Good Industry Practice, would have taken preventative measures to prevent or minimize such Hazardous Materials, and Non-Profit Entity has failed to take such preventative measures. With respect to Extra Work Costs, Non-Profit Entity's entitlement to compensation for a Hazardous Materials Event shall be limited to Extra Work performed under the City-approved plans required to be provided under Section 01 35 44 of Division 10 of the Technical Requirements, and as otherwise limited in accordance with Section 7.7 (Hazardous Materials Management; Risk Allocation).

14.1.6 Costs Payable for Force Majeure Events During the D&C Period

14.1.6.1 If a Delay Event for which an extension of time was granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) is:

(a) a Force Majeure Event; and

(b) the Force Majeure Event is not insured against and is not required to be insured against in accordance with this Agreement,

City will reimburse Non-Profit Entity for Financing Delay Costs (if any) and any Extra Work Costs, if any, authorized pursuant to a Change Order under Section 14.6 (Loss or Damage Due to Force Majeure Termination Event).

14.1.6.2 In addition, if (i) Non-Profit Entity is unable to perform all or substantially all of its obligations under the Contract Documents for a period of 180 consecutive days or more; and (ii) such inability to perform its obligations is not attributable to a concurrent non-Force Majeure Termination Event, City will reimburse Non-Profit Entity for Delay Costs incurred after such 180 day period until 255 days after the occurrence of such Force Majeure Termination Event, after which Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability) applies.

14.1.6.3 In addition, if (i) the Force Majeure Event is not insured against and is not required to be insured against in accordance with this Agreement; (ii) the Force Majeure Event causes damage to the D&C Work; (iii) City issues a Change Order requiring Non-Profit Entity to repair

and reconstruct the D&C Work in light of the Force Majeure Evant; and (iv) the repair and reconstruction of the D&C Work results in an extension of time under Section 14.1.2, City will reimburse Non-Profit Entity for Delay Costs incurred during the time extension.

14.1.7 Costs Payable for Unavoidable Delay Events During the D&C Period

If a Delay Event for which an extension of time was granted under Section 14.1.2 (Extension of Deadlines for General Delay Events) is an Unavoidable Delay Event, City will reimburse Non-Profit Entity for Financing Delay Costs (if any), such reimbursement to be Non-Profit Entity's sole entitlement to compensation for such Unavoidable Delay Event.

14.1.8 Impact of Delay Event on Performance of D&C Work

14.1.8.1 Any failure by Non-Profit Entity to perform the D&C Work during the D&C Period, to the extent directly arising out of any Delay Event, will:

(a) not constitute a breach of this Agreement by Non-Profit Entity;

(b) not result in accrual of D&C Noncompliance Points or D&C Period Deductions with respect to any Delay Event;

(c) relieve Non-Profit Entity of its obligations to perform such directly affected D&C Work for the duration and to the extent directly prevented by such Delay Event; and

(d) not result in a Non-Profit Entity Default or right of termination or other claim by City, other than either Party's right to terminate this Agreement under Section 17.2 (Termination for Force Majeure Events or Insurance Unavailability).

14.1.8.2 Notwithstanding Section 14.1.7 (Impact of Delay Event on Performance of D&C Work), Non-Profit Entity shall remain fully responsible for performance of all elements of the D&C Work not directly impacted or affected by any Delay Event.

14.1.9 Relief for Adverse Weather Event and AQI Event

14.1.9.1 The occurrence of Adverse Weather alone shall not be a prima facie reason for an Adverse Weather Event, and Non-Profit Entity shall use commercially reasonable efforts to continue to work under prevailing conditions. Such efforts by Non-Profit Entity shall include: providing temporary gravel roads; installing a rain dewatering system; protecting interior and exterior areas exposed to rain, wind, and extreme temperatures; and providing temporary heat where required for Work to proceed without delay.

14.1.9.2 Non-Profit Entity shall plan the D&C Work to allow for 17 days of Adverse Weather and AQI Events, in the aggregate, per year during normal working hours. The Project Schedule shall incorporate 17 days per year for the anticipated number of days of Adverse Weather and AQI Events. As used in this Section 14.1.8.2, "year" shall mean the period measured between May 1-April 30 of each calendar year during the D&C Period. If the D&C Period commences or

ends during a partial year, the foregoing 17-day period shall be prorated and rounded up to the nearest day.

14.1.9.3 Non-Profit Entity shall not be entitled to a time extension or relief from its obligations under this Agreement as an Unavoidable Delay for Adverse Weather or an AQI Event until the 18th day of occurrence of Adverse Weather and/or AQI Event in a year, or such lesser applicable amount for any prorated year, as determined pursuant to Section 14.1.8.2.

14.1.9.4 If there are years with less days of Adverse Weather or AQI Events than 17 days in the aggregate, or such lesser applicable amount for any prorated year, as determined pursuant to Section 14.1.8.2, the unused days shall be rolled into Float.

14.1.10 Relief for Tariff Event

14.1.10.1 The Parties acknowledge that one or more Tariff Materials may be subject to Tariff Events and it is the intent of the Parties that the cost impact of such Tariff Events for the Project be determined as provided for in this Section 14.1.10.

14.1.10.2 If a Tariff Event occurs before the earlier of the (i) date on which the Non-Profit Entity issues payment to the supplier of the applicable Tariff Material; or (ii) applicable Tariff Exposure Date (clause (i) and (ii) together the "Tariff Material Buyout Date") and such Tariff Event results in an increase or decrease in the applicable Tariff Index by more than 5% (positive or negative), City shall calculate the Tariff Event Compensation Amount as part of determining the amount, if any, payable as part of Milestone Payment 2. If the Tariff Event Compensation Amount is a positive number, Milestone Payment 2 shall be increased by such amount. If the Tariff Event Compensation Amount is a negative number, Milestone Payment 2 shall be decreased by such amount (and if Milestone Payment 2 is not sufficient to offset, Non-Profit Entity shall pay any excess Tariff Event Compensation Amount owing to City within 30 days after request therefor). The Parties acknowledge that a Tariff Material may be subject to several Tariff Events prior to the Tariff Material Buyout Date. It is the intent of the Parties that the collective impact of all such Tariff Events for the Project be determined as of the Tariff Material Buyout Date as set forth above and herein.

14.1.10.3 As set forth in Section 14.1.10.1 above, a Tariff Event may result in additional compensation (through the Tariff Event Compensation Amount) to Non-Profit Entity. Non-Profit Entity shall be responsible for maintaining detailed records in connection with each Tariff Event and Tariff Material (including purchase orders, supplier quotations, freight and import invoices, tariff duty statements, and payment records) and shall submit such records monthly as part of the monthly progress reports. To the extent that Non-Profit Entity fails to maintain or submit such records, Non-Profit Entity shall irrevocably waive and forfeit its entitlement to payment of any Tariff Event Compensation Amount (but shall remain liable for payment to City of any applicable Tariff Event Compensation Amount owing). To the extent applicable, the Tariff Event Compensation Amount payable to Non-Profit Entity shall be full and complete compensation to Non-Profit Entity for a Tariff Event and no other compensation or other relief shall be available to Non-Profit Entity for such Tariff Event. No time extension or schedule relief shall be provided in connection with a Tariff Event and the only relief applicable to tariffs (including with respect to a Tariff Event) shall be as set forth in this Section 14.1.10 in connection with a Tariff Event. No

other provision of the Contract Documents shall be utilized to seek compensation, schedule relief or any other relief in connection with a Tariff Event, Tariff Materials or tariffs generally.

14.1.10.4 In addition to Non-Profit Entity's obligations to minimize and mitigate potential claims and change orders pursuant to the Contract Documents, including Section 13, in connection with a Tariff Event, Non-Profit Entity shall immediately consult with City upon the occurrence of a Tariff Event about the opportunities and options to minimize the effect of the tariffs and Tariff Event and shall take affirmative action to advance materials and supplies procurement and consider potential replacement materials and supplies and sources of affected materials and supplies.

14.1.10.5 As part of that consultation and those efforts to minimize and mitigate pursuant to Section 14.1.10.3, Non-Profit Entity shall use commercially reasonable efforts to identify and propose one or more Substitute Tariff Materials that are Manufactured or substantially produced in a jurisdiction not subject to the applicable Tariff Event (or subject to a lower tariff), and available within a timeframe and quality consistent with the Critical Path. As part of any Claim for a Tariff Adjustment Amount, Non-Profit Entity shall (i) submit written evidence demonstrating that it actively evaluated and pursued Substitute Tariff Materials from alternate sources; (ii) providing detail as to the reasons such substitutes were technically or commercially infeasible, if applicable; and (iii) affirmatively stating that no viable Substitute Tariff Materials were available that met the requirements of the Contract without material delay or cost increase. The City shall have the right to approve or reject any proposed Substitute Tariff Material based on technical compatibility, schedule impact, cost, overall Project quality and compliance with the requirements of the Contract Documents.

14.2 Relief During Warranty Period

To the extent an event falling under clauses (a)-(b), (e)-(f), (i)-(k), (n)-(o), and (q)-(u) of the definition of "Compensable Delay Event", a Force Majeure Event, or vandalism that does not arise out of or relate to NPE Fault, occurs during the Warranty Period and prevents Non-Profit Entity from undertaking certain Warranty Work, the performance of such Warranty Work shall be temporarily excused and will not trigger any contractual deadlines, breaches or defaults under this Agreement relating to a failure to perform such Warranty Work until the earlier of (i) such time as such Warranty Work can be undertaken or (ii) the cessation or resolution of the Force Majeure Event. For avoidance of doubt, and notwithstanding the preamble to the definition of "Compensable Delay Events," for purposes of the preceding sentence events otherwise falling under the definition of Compensable Delay Event shall be considered the same notwithstanding that they occur during the Warranty Period after the Final Acceptance Date. No compensation shall be payable in connection with a Force Majeure Event, any such Compensable Delay Event or any other event occurring during the Warranty Period and temporary relief from performance shall be the sole relief available to Non-Profit Entity.

14.3 Method of Payment of Compensation for Compensable Delay Events

14.3.1 Additional compensation due for a Compensable Delay Event shall be paid in accordance with the terms of this Agreement, including Section 7.0 (Form and Timing of Compensation) of Exhibit 13 (Costs Schedule).

14.3.2 City shall provide Non-Profit Entity with prompt written Notice of the method chosen for paying Non-Profit Entity for the amounts owed under this Article 14 (Compensation and Other Relief for Delay Events).

14.3.3 If City elects to pay for such amounts by periodic payments, progress payments, milestone payments or a lump sum payment, Non-Profit Entity shall submit an invoice, in a format acceptable to City, for the amount of each such payment, and City will make payment of all undisputed amounts to Non-Profit Entity within 30 Business Days of receipt of a complete and proper invoice.

14.4 Open Book Basis

Non-Profit Entity shall share with City all data, documents and information, and shall conduct all discussions and negotiations, pertaining to any claimed Delay Event on an Open Book Basis.

14.5 Excavations; Public Contract Code 7104

Information regarding site conditions included in the Technical Requirements and Reference Documents (including any information, reports, or studies about site conditions, geotechnical conditions, Utilities or structure and bridge design, and any interpretations, extrapolations, analyses and recommendations contained therein) shall not be considered "indicated" therein as such term is used in Public Contract Code section 7104. Subject to the terms and conditions of the Contract Documents, Non-Profit Entity is responsible for investigating and satisfying itself as to the site conditions affecting the Project Site and the Work. Without prejudice to, derogating from or in any way waiving or modifying the rights and obligations of the Parties under the Contract Documents, to the maximum extent permitted by Law, Non-Profit Entity knowingly, unconditionally, irrevocably and specifically waives each and every right and benefit of Public Contract Code section 7104 to the extent that it may be inconsistent with any provision of the Contract Documents. Non-Profit Entity acknowledges and agrees that this waiver and the risk allocations set forth in the Contract Documents are a material consideration for City to award and enter into this Agreement with Non-Profit Entity.

14.6 Loss or Damage Due to Force Majeure Event During the D&C Period

14.6.1 If the D&C Work is wholly or substantially destroyed or damaged by a Force Majeure Event that occurs during the D&C Period and which:

(a) is not insured against and either (A) is not required to be insured against in accordance with this Agreement or (B) is not insured against by reason of Insurance Unavailability; or

(b) has been insured against in accordance with this Agreement but, prior to commencing repair, replacement or rebuilding, a reasonable estimate of the Extra Work Costs that would be incurred exceed(s) the coverage limits required by this Agreement,

and City requires Principal Project Company to repair, replace or rebuild (or to continue to repair, replace or rebuild) the D&C Work, then the Parties will use reasonable efforts to negotiate and agree on how the D&C Work will be repaired, replaced or rebuilt in accordance

with Exhibit 9 (Change Procedure) and the Extra Work Costs of doing so in accordance with Exhibit 13 (Costs Schedule).

14.6.2 The Parties' attempts to negotiate must not limit City's right to issue a Change Order or Unilateral Change Order in accordance with this Agreement or the Parties' right to terminate under Section 17.2 (Termination for Force Majeure Termination of Insurance Unavailability).

ARTICLE 15. D&C PERIOD DEDUCTIONS AND D&C NONCOMPLIANCE POINTS

15.1 D&C Failure Events

15.1.1 Appendix A of Exhibit 4A (Milestone Payment Mechanism) identifies certain D&C Failure Events applicable from the Effective Date until the end of the Warranty Period.

15.1.2 Intentionally Omitted.

15.1.3 Each D&C Noncompliance Event will result in either or both:

(a) the assessment of D&C Noncompliance Points;

(b) the assessment of D&C Period Deductions,

in each case in accordance with Exhibit 4A (Milestone Payment Mechanism).

15.2 D&C Period Deductions

15.2.1 In accordance with Exhibit 4 (Payment Mechanism) and Section 15.4, City may assess D&C Period Deductions (i) immediately for any D&C Failure Event for which no Rectification Time is specified in the D&C Failure Events Table; (ii) at the end of each Rectification Time or any additional Rectification Time for any D&C Failure Event if Non-Profit Entity has not Rectified the D&C Noncompliance Event; and.

15.2.2 Non-Profit Entity acknowledges that any D&C Period Deductions are reasonable liquidated damages under the circumstances existing at the Effective Date, to compensate City for:

(a) City's increased costs of administering the Contract Documents, including any obligations to pay or reimburse Governmental Entities over the Project for their increased costs of monitoring and enforcing Non-Profit Entity's compliance with applicable Regulatory Approvals;

(b) Intentionally Omitted;

(c) potential harm to the public; and

(d) potential harm to the credibility and reputation of City with stakeholders, policy makers and with the general public.

15.2.3 Non-Profit Entity further acknowledges that such increased costs and loss of revenue, credibility and reputation, would be difficult and impracticable to measure and prove, because, among other things, the costs of administering the Contract Documents prior to increases in the level thereof will be variable and extremely difficult to quantify and the variety of factors that influence use of and demand for the Infrastructure Facility and associated SFMTA services generally make it difficult to sort out causation and quantify the precise revenue loss attributable to the matters that will trigger these liquidated damages.

15.2.4 Except for other remedies expressly provided in this Agreement, including City's right to assess D&C Noncompliance Points and to be indemnified for Third Party claims, any D&C Period Deduction assessed in accordance with this Agreement shall constitute City's sole remedy in respect of City's damages arising from the D&C Noncompliance Event for which such D&C Period Deduction is assessed.

15.3 D&C Failure Event and D&C Noncompliance Event Reporting, Notification and Cure Process

15.3.1 Noncompliance Database

15.3.1.1 Non-Profit Entity shall establish and maintain an electronic database for recording and tracking D&C Failure Events and D&C Noncompliance Events (the "**Noncompliance Database**"). The format and design of the database shall be subject to City's approval, in its reasonable discretion. At a minimum, the database shall:

(a) include a description of each D&C Failure Event in reasonable detail;

(b) provide for automatic notification to City of the entry of a D&C Failure Event in the Noncompliance Database;

(c) identify the location of the D&C Failure Event (if applicable);

(d) identify the date and time of each D&C Failure Event;

(e) Intentionally Omitted;

(f) indicate date and time of Response and Rectification for any D&C Failure Event;

(g) indicate when a D&C Noncompliance Event has developed; and

(h) record the number of assessed D&C Noncompliance Points, the date of each assessment, and the date when the D&C Noncompliance Event is cured.

15.3.1.2 Non-Profit Entity shall provide City with full access to the Noncompliance Database at all times, including the ability to enter D&C Failure Events into the Noncompliance Database as provided in Section 15.3.2 (Notification Initiated by City).

15.3.1.3 Notification Initiated by Non-Profit Entity

As an integral part of Non-Profit Entity's self-monitoring obligations, Non-Profit Entity shall record in the Noncompliance Database, in real time and upon discovery, the occurrence of any D&C Failure Event specified in the D&C Failure Events Table.

15.3.2 Notification Initiated by City

If City believes a D&C Failure Event has occurred that Non-Profit Entity has not recorded in the Noncompliance Database, City may enter the D&C Failure Event into the Noncompliance Database or deliver to Non-Profit Entity a Notice of Determination as provided in Section

15.3.3.2 via the Noncompliance Database, and delivery shall be deemed given upon proper entry of the information into the Noncompliance Database.

15.3.3 Performance Reports

15.3.3.1 Non-Profit Entity shall include in each Monthly Report required under Section 1.2.4.1 of Division 1 a report of all D&C Failure Events and D&C Noncompliance Events that occurred during the preceding calendar month, which reports shall include the same detailed information required to be recorded in the Noncompliance Database. Non-Profit Entity shall correct any inaccuracies in reporting of D&C Failure Events, D&C Noncompliance Events and D&C Noncompliance Points, within 10 Business Days of City's notification to Non-Profit Entity of such inaccuracies.

15.3.3.2 Within a reasonable time after receiving the Monthly Report, City will deliver to Non-Profit Entity a Notice setting forth for each D&C Failure Event City's determination whether the D&C Failure Event was Responded to or Rectified (as applicable) during the applicable Rectification Time, City's determination whether a D&C Noncompliance Event occurred, and the D&C Noncompliance Points and D&C Period Deductions to be assessed with respect to such Noncompliance Event (a "**Notice of Determination**").

15.4 Assessment of D&C Noncompliance Points

15.4.1 Without duplication, City may assess D&C Noncompliance Points in accordance with this Section 15.4 (Assessment of D&C Noncompliance Points) and Appendix A (D&C Noncompliance Points and D&C Period Deductions) of Exhibit 4A (Milestone Payment Mechanism) upon the occurrence of D&C Noncompliance Events.

15.4.2 If, at any time, the Noncompliance Database or a Monthly Report indicates, or City is notified or otherwise obtains Actual Knowledge of, a D&C Failure Event or D&C Noncompliance Event, or City provides Non-Profit Entity with a Notice of Determination, then, without prejudice to any other right or remedy available to City, City may assess D&C Noncompliance Points, subject to the following terms and conditions:

(a) except as provided in Section 15.4.2(b), City may assess D&C Noncompliance Points at each of the following times: (i) immediately for any D&C Failure Event for which no Rectification Time is specified in the D&C Failure Events Table; (ii) the end of the Response Time (if any) if Non-Profit Entity has not Responded to the D&C Noncompliance Event; and (iii) the end of each Rectification Time if Non-Profit Entity has not Rectified the D&C Noncompliance Event;

(b) if City initiated Notice of a D&C Failure Event that becomes a D&C Noncompliance Event entitling City to assess D&C Noncompliance Points, and to the extent City has determined to assess D&C Noncompliance Points, City may allocate the applicable D&C Noncompliance Points at the commencement of the applicable Response Time or Rectification Time. If City and Non-Profit Entity deliver concurrent written Notices of the same D&C Failure Event, or concurrently seek to enter the details of the D&C Failure Event into the Noncompliance Database, Non-Profit Entity's Notice shall prevail, if complete and compliant;

(c) the number of points listed in Appendix A to Exhibit 4A (Milestone Payment Mechanism) for any particular D&C Noncompliance Event is the maximum number of D&C Noncompliance Points that may be assessed for each event or circumstance that is a D&C Noncompliance Event. City may, in its sole discretion, assess less than the maximum; and

(d) if a D&C Noncompliance Event continues beyond its relevant Response Time or Rectification Time (as applicable), if any, each subsequent Response Time or Rectification Time (as applicable), shall be treated as a new and separate D&C Noncompliance Event, without necessity for further Notice and D&C Noncompliance Points will continue to accrue for every additional Response Time or Rectification Time (as applicable), shall be treated as a new and separate D&C Noncompliance Event.

15.4.3 Regardless of the continuing assessment of D&C Noncompliance Points under this Section 15.4 (Assessment of D&C Noncompliance Points), City may exercise its step-in rights under Section 16.2.5 (City Step-in Rights) and, if applicable, its Work suspension rights under Section 16.2.8 (Suspension of Work), after expiration of the applicable Rectification Time.

15.5 Performance Notice

15.5.1 In addition to other remedies available under this Agreement, City may provide Non-Profit Entity, a Notice, indicating unsatisfactory performance and establishing the matters that give rise to such Notice, if the Performance Notice Threshold is reached ("**Performance Notice**").

15.5.2 If a Performance Notice is given by the City, then:

(a) Non-Profit Entity shall, within 20 days of receiving the Performance Notice, submit to the City a cure plan for review and approval in accordance with Exhibit 11 (Submittals Review Process) ("**Performance Cure Plan**"). The Performance Cure Plan will include reasons for the unsatisfactory performance and specific actions (including timeframes) to be taken by Non-Profit Entity to improve its performance.

(b) The Parties shall consult to develop and agree the Performance Cure Plan within 10 days of Non-Profit Entity's submittal of such plan; and

(c) Following agreement or determination of the Performance Cure Plan, Non-Profit Entity shall implement and comply with the Performance Cure Plan and any failure to do so shall result in a second Performance Notice.

15.6 Increased Oversight

15.6.1 In addition to other remedies available under this Agreement, City may provide Non-Profit Entity, a Notice for increased Oversight, if the Increased Oversight Threshold is reached.

15.6.2 In addition to other remedies available under this Agreement, City may, by Notice to Non-Profit Entity direct Non-Profit Entity to increase its own oversight or change the type and/or

increase the level of City's Oversight of the Project, in such manner and to such level considered fit, if the Increased Oversight Threshold is reached.

15.6.3 If City changes the type or increases the level of its Oversight due to Non-Profit Entity reaching the Increased Oversight Threshold, then Non-Profit Entity shall pay and reimburse City, within 30 days after receipt of written demand and reasonable supporting documentation, all reasonable increased costs and fees City incurs in connection with such action, including City's Recoverable Costs.

15.6.4 If City directs Non-Profit Entity to increase its own oversight or changes the type or increases the level of its Oversight, then:

(a) Non-Profit Entity shall, within 30 days of Notice submit to the City a cure plan for review and approval in accordance with Exhibit 11 (Submittals Review Process) ("**Increased Oversight Cure Plan**"). The Increased Oversight Cure Plan shall include specific actions (including timeframes) to be taken by Non-Profit Entity to improve its performance; and

(b) the Parties shall consult to develop and agree to the Increased Oversight Cure Plan within 20 days of Non-Profit Entity's submittal of the Increased Oversight Cure Plan.

15.6.5 Non-Profit Entity's obligation to pay and reimburse City for increased Oversight costs shall apply to all changes in the type or increases in the level of City's Oversight occurring until Non-Profit Entity has:

(a) implemented and complied with the Increased Oversight Cure Plan;

(b) fully and completely cured the breaches and failures that gave rise to the Increased Oversight;

(c) diligently pursued cure of all other D&C Failure Events; and

(d) has accumulated less than 40 Noncompliance Points in the subsequent 90 days following notice of Increased Oversight.

15.7 Persistent NPE Default

15.7.1 In addition to other remedies available under this Agreement including Section 15.6**,** City may provide NPE with a Notice of Persistent NPE Default ("**Persistent NPE Default Notice**").

15.8 Cure Plan for Persistent NPE Default

15.8.1 Upon the occurrence of a Persistent NPE Default:

(a) Non-Profit Entity shall, within 30 days of the Persistent NPE Default, submit to City a cure plan for review and approval in accordance with Exhibit 11 (Submittals Review Process) ("**Persistent NPE Default Cure Plan**"). The Persistent NPE Default Cure Plan shall include specific actions (including timeframes) to be taken by Non-Profit Entity to improve performance

(b) City may require, in its good faith discretion, that Non-Profit Entity's actions under this Section 15.8.1 include improving Non-Profit Entity's quality management practices, plans and procedures, revising and restating the Project Management Plan, changing organizational and management structure, increasing monitoring and inspections, changing Key Personnel and other important personnel, replacement of Subcontractors;

(c) The Parties shall consult to develop and agree to the Persistent NPE Default Cure Plan within 20 days of Non-Profit Entity's submittal of the plan; and

(d) Following agreement or determination of the Persistent NPE Default Cure Plan, Non-Profit Entity shall implement and comply with the cure plan and any failure to do so shall result in an additional NPE Default which shall not be subject to any additional Notice or cure period.

ARTICLE 16. DEFAULT; REMEDIES

16.1 Default by Non-Profit Entity; Cure Periods

16.1.1 NPE Default

Non-Profit Entity shall be in breach under this Agreement upon the occurrence of any one or more of the following events or conditions (each a "**NPE Default**"):

(a) Non-Profit Entity fails to satisfy the conditions set forth in Section 7.4.3 (Commencement of Non-Construction Work) within 30 days after City's issuance of NTP 1, to begin the D&C Work within 10 days following City's issuance of NTP 2, or to diligently prosecute the Work to completion in accordance with the Contract Documents;

(b) Non-Profit Entity abandons all or a material part of the Project, which abandonment is deemed to occur if (i) Non-Profit Entity demonstrates through statements, acts or omissions an intent not to continue, for any reason other than a Delay Event that materially impairs Non-Profit Entity's ability to continue, to design or construct all or a material part of the Project, or (ii) no significant Work (taking into account the Project Schedule, if applicable, and any Delay Event) on the Project is performed for a continuous period of more than 30 days unless due to Non-Profit Entity's compliance with a City suspension order issued under this Agreement;

(c) Non-Profit Entity fails to achieve Substantial Completion by the Long Stop Date;

(d) Non-Profit Entity (i) fails to make any payment owing to City under the Contract Documents when due, or (ii) fails to deposit other funds into any custodial account, trust account or other reserve or account in the amount and within the time period required by the Contract Documents;

(e) Non-Profit Entity fails to comply with its obligations with respect to Warranty Work, including its obligations to (i) respond to warranty issues and complete the Warranty Work in the time periods and in the manner set forth in the Contract Documents; and (ii) provide Notice and diligently complete the Warranty Work during any extended time period permitted under Section 6.11.1.4 ;

(f) (i) any representation or warranty in the Contract Documents made by Non-Profit Entity is false in any material respect, materially misleading or inaccurate in any material respect when made or omits material information when made, or (ii) any certificate, schedule, report, instrument or other document delivered by or on behalf of Non-Profit Entity, Principal Project Company, any Equity Member, Controlling Affiliate of Principal Project Company, Prime Contractor, Supplier or other NPE-Related Entity to City as part of the Implementation Proposal or under the Contract Documents is false in any material respect, materially misleading or inaccurate in any material respect when made or omits material information when made;

(g) Non-Profit Entity fails to obtain, provide and maintain any insurance, bonds, guarantees, letters of credit or other payment or performance security as required under the Contract Documents for the benefit of relevant parties, or Non-Profit Entity fails to comply with any requirement of the Contract Documents pertaining to the amount, terms or coverage of the insurance or security or fails to pay the associated premiums, deductibles, retain self-insured retentions, co-insurance or any other such amounts as and when due;

(h) Non-Profit Entity ceases performing a substantial portion of its business, or a substantial portion of such business is suspended or is not being performed, whether voluntarily or involuntarily, that has or will have a material adverse effect on Non-Profit Entity's ability to perform its obligations under this Agreement;

(i) (i) Non-Profit Entity makes, attempts to make or suffers a voluntary or involuntary assignment or transfer of all or any portion of the Contract Documents, the Project or NPE's Interest in violation of the limitations on assignment or transfer under this Agreement, (ii) there occurs an Equity Transfer or a Change of Control not permitted under this Agreement, or (iii) any other violation of the limitations on assignment or transfer under this Agreement occurs;

(j) Non-Profit Entity fails to timely observe or perform, or cause to be observed or performed any material covenant, agreement, obligation, term or condition required to be observed or performed by Non-Profit Entity under the Contract Documents, including failure to pay for or perform the Design Work, Construction Work or any portion thereof (except to the extent payment is subject to a good faith payment dispute with a subcontractor) in accordance with the Contract Documents in any material respect, provided that any failure that constitutes a D&C Noncompliance Event or D&C Failure Event is not considered a default under this clause (j) although such failure may become a NPE Default in accordance with clause (r) or (s) below;

(k) Non-Profit Entity, Principal Project Company, any Equity Member, any Controlling Affiliate of Principal Project Company, any Prime Contractor, any Supplier, any other NPE-Related Entity, or any of their respective partners, members, officers, directors, responsible managing officers, or responsible managing employees, has been convicted in a court of competent jurisdiction of any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in California Public Contract Code section 1101, with any public entity, as defined in California Public Contract Code section 1100, provided that, if the conviction relates to Principal Project Company, an Equity Member, a Controlling Affiliate of Principal Project Company, a Prime Contractor, a Supplier, any other NPE-Related Entity, or any of their or Non-Profit Entity's respective partners, members, officers, directors, responsible managing officers, or responsible managing employees, (i) such Person is involved in the Project at the time of such conviction and (ii) Non-Profit Entity fails to remove such Person from the Project;

(l) Non-Profit Entity fails to comply with City's order to suspend Work issued in accordance with Sections 9.8.6, 10.1.2.4(c), 16.2.4.5(b) or 16.2.8 (Suspension of Work) within the time reasonably allowed in such order;

(m) A Bankruptcy Event arises with respect to:

(i) Non-Profit Entity or the Principal Project Company except to the extent such Bankruptcy Event is caused by a failure by City to pay Non-Profit Entity as required under this Agreement, and/or

(ii) Any D&C Contractor or the D&C Contractor Guarantor, unless Non-Profit Entity:

(A) enters into a replacement D&C Contract or D&C Contractor Guaranty (as relevant) with a reputable counterparty acceptable to City, in its good faith discretion, within 60 days of the relevant Bankruptcy Event; provided, however, that, if Non-Profit Entity has commenced and is diligently pursuing meaningful steps to secure a replacement D&C Contract or D&C Contractor Guaranty (as relevant) immediately after the Bankruptcy Event, Non-Profit Entity shall have such additional period of time, up to a maximum period of 120 days after the Bankruptcy Event;

(B) in the absence of entering into a replacement D&C Contract, Non-Profit Entity otherwise demonstrates to the satisfaction of City, in its good faith discretion, that Non-Profit Entity possesses the technical and financial capacity to perform all remaining D&C Work in accordance with this Agreement;

(n) Non-Profit Entity draws against any custodial account, trust account, allowance or other reserve or account in violation of the Contract Documents or makes a false or materially misleading representation in connection with a draw against any such account, allowance or reserve;

(o) Non-Profit Entity fails to comply with applicable Regulatory Approvals or Laws, including the Laws described in Exhibit 16 (Federal, State and City Requirements) in any material respect;

(p) any use of the Project by any NPE-Related Entity that violates requirements of applicable Regulatory Approvals or Laws or otherwise is not permitted under the Contract Documents;

(q) the Project Implementation Agreement or any D&C Contract is terminated (other than non-default termination on its scheduled termination date) and Non-Profit Entity has not entered into a replacement Project Implementation Agreement or D&C Contract (as relevant) with a reputable counterparty acceptable to City, in its good faith discretion, within 60 days of the termination of the Project Implementation Agreement or D&C Contract (as applicable); provided, however, that, if Non-Profit Entity has commenced and is diligently pursuing meaningful steps to secure a replacement Project Implementation

Agreement or D&C Contract (as relevant) immediately after the termination, Non-Profit Entity shall have such additional period of time, up to a maximum period of 120 days after the termination;

(r) a Persistent NPE Default occurs, City delivers to Non-Profit Entity a Default Notice, and either (i) Non-Profit Entity fails to deliver to City, within 30 days after such Notice is delivered, a cure plan meeting the requirements for approval in Section 15.8 (Cure Plan for Persistent NPE Default) or (ii) Non-Profit Entity fails to fully comply with the schedule or specific elements of, or actions required under, the approved cure plan; and

(s) after any rights of appeal have been exhausted, Non-Profit Entity, Principal Project Company, any NPE-Related Entity or any Subcontractor (i) is determined to be disqualified, suspended or debarred, or otherwise excluded from bidding, proposing or contracting with a federal, State, or City department or agency, or (ii) has not dismissed any Subcontractor whose work is not substantially complete and who is determined to be disqualified, suspended or debarred, or otherwise excluded from bidding, or proposing or contracting with a federal, State, or City department or agency.

16.1.2 Default Notice and Cure Periods

16.1.2.1 Non-Profit Entity shall promptly:

(a) provide Notice to City upon the occurrence of a NPE Default; and

(b) take steps to commence the cure of and mitigate the effects of any NPE Default.

16.1.2.2 If Non-Profit Entity notifies City of a NPE Default in accordance with Section 16.1.2.1 or City considers a NPE Default has occurred, City may give NPE a Notice ("**Default Notice**") which contains:

(a) details of the NPE Default;

(b) the cure period (if any) by which Non-Profit Entity shall cure the NPE Default in accordance with Section 16.1.2.3; and

(c) if the NPE Default is not capable of being cured or no cure period is applicable, a date by which Non-Profit Entity shall comply with any requirements of City in connection with that NPE Default.

16.1.2.3 The following list identifies Non-Profit Entity's rights to receive Notice and opportunity to cure before City may exercise its right to terminate this Agreement or enforce its Performance Bond in accordance with Section 16.2.7 (Performance Bond), and identifies other NPE Defaults that are not subject to cure:

(a) respecting any NPE Default under Sections 16.1.1(h) or 16.1.1(m), a period of 15 days after delivery by City to Non-Profit Entity of a Default Notice;

(b) respecting a NPE Default under Sections 16.1.1(a), 16.1.1(b), 16.1.1(d), 16.1.1(i), 16.1.1(n), 16.1.1(o), or 16.1.1(p), a cure period of 30 days after City delivers to Non-Profit Entity a Default Notice; provided that City may effect cure, at Non-Profit Entity's expense, if a NPE Default under Section 16.1.1(g) continues beyond five days after such Notice is delivered;

(c) respecting a NPE Default under Sections 16.1.1(f), 16.1.1(j) or 16.1.1(k), a cure period of 30 days after City delivers to Non-Profit Entity a Default Notice; provided that:

(i) if the nature of such NPE Default is such that the cure cannot with diligence be completed within such time period and Non-Profit Entity has commenced and is diligently pursuing meaningful steps to cure immediately after receiving the Default Notice, Non-Profit Entity shall have such additional period of time, up to a maximum cure period of 60 days after City delivers the Default Notice, as is reasonably necessary to diligently effect cure; and

(ii) as to Section 16.1.1(f), cure will be regarded as complete when the adverse effects of the breach are cured; and

(d) respecting a NPE Default under Sections 16.1.1(c), 16.1.1(l), 16.1.1(q), 16.1.1(r), or 16.1.1(s) no cure period is allowed.; and

(e) respecting a NPE Default under Section 16.1.1(e), a cure period of 7 days after City delivers to Non-Profit Entity a Default Notice.

16.1.2.4 Non-Profit Entity acknowledges and agrees that Non-Profit Entity shall not be entitled to any additional notices, cure periods or extensions arising out of, or related to, the existence of the Project Implementation Agreement and any provisions set forth therein between Non-Profit Entity and Principal Project Company.

16.1.3 Warning Notices

16.1.3.1 Without prejudice to any other right or remedy available to City, City may deliver a Notice (a "**Warning Notice**") to Non-Profit Entity, with a copy to the Collateral Agent, stating explicitly that it is a "Warning Notice" of a material NPE Default and stating in reasonable detail the matter or matters giving rise to the Warning Notice and, if applicable, amounts due from Non-Profit Entity, whenever there occurs a NPE Default.

16.1.3.2 If City issues a Warning Notice for any NPE Default after it issues a Default Notice, then the remaining cure period available to Non-Profit Entity, if any, for such NPE Default before City may terminate this Agreement on account of such NPE Default will be extended by the time period between the date the Default Notice was issued and the date the Warning Notice is issued. However, this shall not affect the time when City may exercise any remedy other than termination respecting such NPE Default.

16.1.4 Non-Profit Entity to Comply with Default Notice and Provide Cure Plan

16.1.4.1 If City gives a Default Notice to Non-Profit Entity, then:

(a) Non-Profit Entity shall comply with the Default Notice;

(b) Except for a NPE Default under Sections 16.1.1(b), 16.1.1(e), 16.1.1(i), 16.1.1(m), 16.1.1(q), and 16.1.1(r), and NPE Defaults for which no cure period is applicable, Non-Profit Entity shall, as soon as possible, give City a plan for review and approval in accordance with Exhibit 11 (Submittal Review Process) to cure the NPE Default and comply with any requirements of City in accordance with the terms of City's Default Notice (which plan shall also specify steps to address the underlying cause of the NPE Default and to avoid similar NPE Defaults occurring in the future);

(c) The Parties shall consult to develop and agree to the cure plan; and

(d) Following agreement or determination of the cure plan, Non-Profit Entity shall implement and comply with the cure plan. Any failure to implement the cure plan or comply with the agreed cure plan will result in a NPE Default which is not subject to any cure period.

16.1.4.2 In the case of a Persistent NPE Default, Non-Profit Entity shall comply with Section 15.8 (Cure Plan for Persistent NPE Default).

16.2 City Remedies for NPE Default

16.2.1 Subject to the rights of Lenders under any Direct Agreement, upon occurrence of a NPE Default that has not been cured within the applicable cure period, if any, City may:

(a) Terminate this Agreement as provided in Section 17.3 (Termination for NPE Default);

(b) Exercise its step-in rights in Section 16.2.5 (City Step-In Rights);

(c) Recover any Losses on account of the occurrence of a NPE Default, regardless of when the Default Notice is given, whether the Losses accrue after the occurrence of the NPE Default or whether the NPE Default is subsequently cured;

(d) Where such NPE Default is not cured within the applicable cure period, if any, specified in Section 16.1.2.3 make demand upon and enforce any performance security, and make demand upon, draw on and enforce and collect any letter of credit, guaranty or other payment or performance security (including City's rights to withhold payment pursuant to Section 11.6.1 and Section 11.6.3) available to City under this Agreement with respect to the NPE Default in any order, in City's sole discretion, without Notice to Non-Profit Entity. City will apply the proceeds of any such action to the satisfaction of Non-Profit Entity's obligations under this Agreement, including payment of amounts due City;

(e) Suspend the Work in whole or part in accordance with Section 16.2.8 (Suspension of Work); or

(f) Exercise any other remedies available under this Agreement or at law or in equity.

16.2.2 Each right and remedy of City upon the occurrence of a NPE Default is cumulative as set out in Section 16.2.10 (Cumulative, Non-Exclusive Remedies).

16.2.3 Immediate City Entry and Cure of Wrongful Use

Without Notice and without awaiting lapse of the period to cure, in the event of any NPE Default under Section 16.1.1(p), City may enter and take control of the relevant portion of the Project to restore the permitted uses until such breach is cured or City terminates this Agreement; provided, however, that the foregoing shall be subject to the rights of Lenders under any Direct Agreement except in the event of an Emergency, an imminent safety risk, an unauthorized use of the Project by Non-Profit Entity or a NPE Default that materially precludes the use of the Project by City in the manner contemplated under this Agreement. Non-Profit Entity shall pay to City on demand City's Recoverable Costs in connection with such action, which payment will be reimbursed by City if a determination is ultimately made that no NPE Default occurred, promptly following such a determination. So long as City undertakes such action in good faith, even if under a mistaken belief in the occurrence of such a NPE Default, such action shall not be deemed unlawful or a breach of this Agreement, shall not expose City to any liability to Non-Profit Entity, other than the reimbursement obligation described above, and shall not entitle Non-Profit Entity to any other remedy except if City's action constitutes gross negligence, recklessness or willful misconduct. Non-Profit Entity acknowledges that City has a high priority, paramount public interest in maintaining the authorized uses of the Project and continuous access to the Project. City's good faith determination that such action is needed shall be deemed conclusive in the absence of clear and convincing evidence to the contrary. City will promptly relinquish control and possession of the relevant portion of the Project to Non-Profit Entity once City determines that such NPE Default has been cured.

16.2.4 Remedies for Failure to Meet Safety Standards or Perform Safety Compliance

16.2.4.1 If at any time Non-Profit Entity or its Surety fails to meet any Safety Standard or timely perform Safety Compliance or if City and Non-Profit Entity cannot reach an agreement regarding the interpretation or application of a Safety Standard or the valid issuance of a Safety Compliance Order within a period of time acceptable to City, City may undertake or direct Non-Profit Entity to undertake any work required to ensure implementation of and compliance with Safety Standards as interpreted or applied by City or with the Safety Compliance Order. If at any time a condition or deficiency of the Project violates any Law respecting health, safety or right of use and access, including the Americans with Disabilities Act of 1990, 42 U.S.C. Sections 12101 et seq., and regulations of the United States Occupational Safety and Health Administration (OSHA), City may take any immediate corrective actions required.

16.2.4.2 Subject to Section 16.2.4.3, to the extent that any work done under Section 16.2.4.1 is undertaken by City and is reasonably necessary to comply with Safety Standards, perform valid previously issued Safety Compliance Orders or correct a violation of Law or a Regulatory Approval respecting health, safety or right of use and access, Non-Profit Entity shall pay to City on demand the costs of such work including City's Recoverable Costs in connection with such work. In such event, City (whether it undertakes the work or has directed Non-Profit Entity to undertake the work) shall have no obligation or liability to compensate Non-Profit Entity for any Losses Non-Profit Entity suffers or incurs arising from, resulting to or resulting from such work.

16.2.4.3 To the extent that City requires Non-Profit Entity to perform Work under Section 16.2.4.1 that is not reasonably necessary to comply with Safety Standards, perform valid previously issued Safety Compliance Orders or correct a violation of Law or Regulatory Approval respecting health, safety or right of use and access, such requirement shall be considered a City Change, and Non-Profit Entity's obligation to pay City's Recoverable Costs shall not include City's costs relating to the City Change.

16.2.4.4 Notwithstanding anything to the contrary contained in this Agreement and without limiting City's other rights and remedies under this Agreement, City shall have the rights and remedies specified in Section 16.2.4.5 if, in the good faith judgment of City:

(a) Non-Profit Entity has failed to meet any Safety Standards or perform Safety Compliance and the failure results in an Emergency or danger to persons or property; or

(b) Non-Profit Entity is not then diligently taking all necessary steps to rectify or deal with such Emergency or danger.

16.2.4.5 Upon the occurrence of any event described in Section 16.2.4.4, City may without Notice and without awaiting lapse of the period to cure any breach:

(a) immediately take such action as may be reasonably necessary to rectify the Emergency or danger, in which event Non-Profit Entity shall pay to City on demand the cost of such action, including City's Recoverable Costs, which payment will be reimbursed by City if a determination is ultimately made that Non-Profit Entity did not fail to meet applicable Safety Standards or to perform Safety Compliance; or

(b) suspend Work and/or close or cause to be closed any and all portions of Project affected by the Emergency or danger.

16.2.4.6 So long as City undertakes any action under Section 16.2.4.5 in good faith, even if under a mistaken belief in the occurrence of such failure or existence of an Emergency or danger, such action shall not be deemed unlawful or a breach of this Agreement, shall not expose City to any liability to Non-Profit Entity, other than the reimbursement obligation described in Section 16.2.4.5, and shall not entitle Non-Profit Entity to any other remedy, except if City's action was undertaken in bad faith or constitutes gross negligence, recklessness or willful misconduct (in which case, City shall retain liability therefor).

16.2.4.7 Non-Profit Entity acknowledges that City has a high priority, paramount public interest in protecting public and worker safety at the Project and adjacent areas. City's good faith determination of the existence of such a failure, Emergency or danger shall be deemed conclusive in the absence of clear and convincing evidence to the contrary. Immediately following rectification of such Emergency or danger, as determined by City, City will allow the Work to continue or such portions of the Project to reopen, as applicable.

16.2.5 City Step-in Rights

16.2.5.1 If Non-Profit Entity has not fully and completely cured a NPE Default by the expiration of the applicable cure period, if any, City may, subject to the terms of any Direct Agreement and in accordance with the terms and conditions of this Section 16.2.5 (City Step-in Rights), pay and

perform all or any portion of Non-Profit Entity's obligations under the Contract Documents that are the subject of such NPE Default. In connection with the exercise by City of its step-in rights as described herein, Non-Profit Entity acknowledges and agrees that Non-Profit Entity shall not be entitled to any additional notices, cure periods or extensions arising out of, or related to, the existence of the Project Implementation Agreement and any provisions set forth therein between Non-Profit Entity and Principal Project Company.

16.2.5.2 Upon exercising its rights pursuant to Section 16.2.5.1, City may, to the extent necessary to cure a NPE Default:

(a) perform or attempt to perform, or cause to be performed, such Work;

(b) employ security guards and other safeguards to protect the Project;

(c) spend such sums as City deems reasonably necessary to employ and pay such architects, engineers, consultants and contractors and obtain materials and equipment as may be required to perform such Work, without obligation or liability to Non-Profit Entity or any Contractors for loss of opportunity to perform the same Work or supply the same materials and equipment;

(d) in accordance with Section 16.2.7 (Performance Bond), draw on and use proceeds from the Performance Bond and any other available security or source of funds available to Non-Profit Entity for the purposes set forth in this Section 16.2.5.2 including amounts held in an operating account, to the extent such instruments provide recourse to pay such sums, provided City's right to access amounts held in an operating account shall not include a security interest in such funds nor shall the exercise of such right by City interfere with the right of the Lenders, if any, under the Security Documents and the Direct Agreement to access such funds;

(e) execute all applications, certificates and other documents as may be required;

(f) make decisions respecting, assume control over and continue Work as may be reasonably required;

(g) modify or terminate any contractual arrangements in Non-Profit Entity's Contracts in City's sole discretion, without liability for termination fees, costs or other charges in accordance with the terms of those Contracts, including the requirements for each Contract listed in Section 9.3.2 (Key Contract Provisions);

(h) meet with, coordinate with, direct and instruct Contractors and Suppliers, process invoices and applications for payment from Contractors and Suppliers, pay Contractors and Suppliers, and resolve claims of Contractors and Suppliers;

(i) take any and all other actions it may consider necessary to effect cure and perform the Work; and

(j) prosecute and defend any action or proceeding incident to the Work.

16.2.5.3 Non-Profit Entity shall reimburse City on demand for its Recoverable Costs incurred in connection with the performance of any act or work authorized by this Section 16.2.5 (City Step-in Rights).

16.2.5.4 In addition to its continuing ownership of the Project Site and rights to have access to the Project Site throughout the Term, including the rights described in Section 6.7 (Coordination, Cooperation and Access), City and its Authorized Representatives, contractors, subcontractors, vendors and employees shall have the right to enter onto all Temporary Areas, exercisable at any time or times without Notice, for the purpose of carrying out City's step-in rights under Section 16.2.3 (Immediate City Entry and Cure of Wrongful Use) and this Section 16.2.5 (City Step-in Rights). Non-Profit Entity grants City a perpetual, non-rescindable right of entry onto the Temporary Areas for such purpose.

16.2.5.5 If City exercises any right to pay or perform under this Section 16.2.5 (City Step-in Rights), it nevertheless shall have no liability to Non-Profit Entity for the sufficiency, adequacy or quality of any such payment or performance, or for any effect of such payment or performance on the Work or the Project, unless caused by the gross negligence, recklessness or willful misconduct of City (in which case, City shall retain liability therefor). City and its Authorized Representatives, contractors, subcontractors, vendors and employees shall have no liability to Non-Profit Entity for any inconvenience or disturbance arising out of any entry onto the Project Site or Temporary Areas as contemplated by Section 16.2.3 (Immediate City Entry and Cure of Wrongful Use) or this Section 16.2.5 (City Step-in Rights), provided that the foregoing shall not absolve any Person of liability as a matter of law for its gross negligence, recklessness or willful misconduct.

16.2.5.6 City's rights under this Section 16.2.5 (City Step-in Rights) (but not City's rights under Section 16.2.3 (Immediate City Entry and Cure of Wrongful Use) regarding City's immediate right of entry and right to cure wrongful use of the Project) are subject to the right of any Surety to assume performance and completion of all bonded work under a Performance Bond.

16.2.5.7 If City takes action described in this Section 16.2.5 (City Step-in Rights) and it is later finally determined that City lacked the right to do so because there did not occur a NPE Default or because Non-Profit Entity had previously fully cured the default in accordance with this Agreement, then City's action shall be treated as a City Change.

16.2.6 Damages; Offset

16.2.6.1 Except as limited by City's agreement to liquidate certain damages as specified in this Agreement, and subject to the limitations in Section 16.6 (Limitation on Consequential Damages), City shall be entitled to recover any and all damages available at law on account of the occurrence of a NPE Default. Non-Profit Entity shall owe any such damages that accrue after the occurrence of NPE Default regardless of when Default Notice is given or whether NPE Default is subsequently cured.

16.2.6.2 In the case of a termination for NPE Default, City may deduct and offset any damages owing to it under the Contract Documents from and against any amounts City may owe to Non-Profit Entity. If the amount of damages owing to City is not liquidated or known with certainty at the time a payment is due from City to Non-Profit Entity with respect to such termination for a NPE Default, City may deduct and offset the amount it reasonably estimates will be due, subject to City's obligation to adjust such deduction or offset when the amount of damages owing to City is liquidated or becomes known with certainty.

16.2.6.3 Damages owed to City under this Section 16.2.6 (Damages; Offset) shall bear interest at the Late Payment Rate from and after the date any amount becomes due to City until the date paid.

16.2.6.4 Without limiting Section 16.2.6.2 and without modifying City's rights to make deductions from Milestone Payment 2 in accordance with this Agreement, on or before the Substantial Completion Date, the amount of any damages attributable to Non-Profit Entity may be deducted or offset from periodic payments owing by City under Section 11.1 (Milestone Payment) (including damages attributable to any NPE Default that concerns the D&C Work and is the subject of a Notice delivered to Non-Profit Entity before the date such payments are owing), subject to Section 2.4 of Exhibit 4A (Milestone Payment Mechanism). Following the Substantial Completion Date, City may require Non-Profit Entity to pay City amounts owing under this Section 16.2.6.4, collect such amounts from the Performance Bond and/or exercise any such rights and remedies set forth in Section 11.6.3.

16.2.6.5 Subject to Section 11.6.1 and Section 11.6.3, if the amount of damages owing to City from Non-Profit Entity is not liquidated or known with certainty at the time the payment is due, City may draw upon, deduct and offset up to 105% of the amount it reasonably estimates will be due, in which case, the Parties shall adjust such draw, deduction or offset when the amount of damages owing to City becomes known with certainty, with interest at the Late Payment Rate payable by City on excess amounts withheld and interest at the same rate payable by Non-Profit Entity on any shortfall.

16.2.6.6 City's right of offset permitted under this Agreement includes all amounts paid by City to satisfy, discharge and defend against any claim of lien, stop Notice, equitable lien or any other demand for payment or security made or filed with City, City's property or the Project by any Person claiming that any NPE-Related Entity has failed to perform its contractual obligations or to make payment for any obligation incurred for or in connection with the Work, provided that no such offset shall be made if Non-Profit Entity has filed surety bonds fully releasing City and City's property from such claim or lien under applicable Law.

16.2.7 Performance Bond

16.2.7.1 Subject to Sections 10.5.3, 16.2.6.2 and 16.2.7.2, upon the occurrence of a NPE Default and expiration, without full and complete cure, of the applicable cure period, if any, under Section 16.1.2 (Default Notice and Cure Periods), without waiving or releasing Non-Profit Entity from any obligations or limiting other remedies that may be available to City, City may make demand upon and enforce any Performance Bond, and make demand upon, draw on and enforce and collect any letter of credit, guaranty or other payment or performance security available to City under this Agreement with respect to such NPE Default in any order. City will apply the proceeds of any such action to the satisfaction of Non-Profit Entity's obligations under this Agreement, including payment of amounts due to City.

16.2.7.2 If City is an additional obligee under a Performance Bond, or is a transferee beneficiary under any letter of credit or guaranty, then City will forbear from exercising remedies as additional obligee or transferee beneficiary in connection with an NPE Default so long as Non-Profit Entity, Principal Project Company or the Collateral Agent commences the good faith, diligent exercise of remedies within 10 days after City delivers Notice to Non-Profit Entity, Principal Project Company and the Collateral Agent of City's intent to make a claim under such security, letter of credit or guaranty and subsequently continues such good faith, diligent exercise of remedies until the default is cured.

16.2.7.3 Section 16.2.7.2 shall not apply where access to a bond, letter of credit, guaranty or other payment or performance security is for the purpose of satisfying damages owing to City, in which case City shall be entitled to make demand, draw, enforce and collect regardless of whether NPE Default is subsequently cured.

16.2.7.4 City will provide Notice to Non-Profit Entity at the same time or promptly after City takes any action to make demand upon, draw on, enforce or collect any Performance Bond.

16.2.8 Suspension of Work

16.2.8.1 Subject to the rights of the Lenders as provided in the Direct Agreement, in addition to any other right to suspend the Work under the Contract Documents, City may suspend all or part of the Work by Notice to Non-Profit Entity if Non-Profit Entity fails to cure and correct, within the applicable cure period available to Non-Profit Entity (if any), the following:

(a) failure to perform the Work in compliance with the Contract Documents, where such failure is not substantially cured within 15 days after City delivers Notice thereof to Non-Profit Entity;

(b) failure to comply with any Law or Regulatory Approval (including failure to implement protective measures for Threatened or Endangered Species, failure to handle, preserve and protect paleontological and cultural (including archaeological and historic) resources, or failure to handle Hazardous Materials, in accordance with applicable Laws and Regulatory Approvals);

(c) performance of Design Work before achieving all conditions in Section 7.4.3 (Commencement of Non-Construction Work), or performance of Construction Work before all conditions precedent to commencement of Construction Work have been met;

(d) discovery of Nonconforming Work not corrected within 15 days after City delivers Notice of such Nonconforming Work to Non-Profit Entity or, if correction will require more than 15 days, failure of Non-Profit Entity to deliver to City, within 15 days of said Notice, a plan acceptable to City for correction of the Nonconforming Work or to diligently execute and complete such plan;

(e) failure to pay in full when due sums owing to any Contractor or Supplier for services, materials or equipment, except only for retainage provided in the relevant Contract and amounts in dispute, which amounts in dispute may include amounts withheld on account of damage caused by such Contractor or Supplier or arising out of such Contractor or Supplier's failure to comply with the relevant Contract;

(f) failure to provide proof of required insurance coverage under Section 10.1.2.4 (Verification of Coverage);

(g) failure to deliver or maintain Payment Bonds or Performance Bonds;

(h) the existence of conditions unsafe for workers, other Project personnel or the general public, including failures to comply with Safety Standards or perform Safety Compliance in accordance with Section 16.2.4 (Remedies for Failure to

Meet Safety Standards or Perform Safety Compliance) (and in any such case the order of suspension may be issued without awaiting any cure period);

(i) failure to carry out and comply with Unilateral Change Orders, where such failure is not substantially cured within 15 days after City delivers Notice thereof to Non-Profit Entity; and

(j) for the reasons specified in Sections 9.8.6, 10.1.2.4(c) and 16.2.4.4.

16.2.8.2 In addition to the protections from liability under Section 16.2.4.6, City shall have no liability to Non-Profit Entity, and Non-Profit Entity shall have no right to make any Claim against City, due to any suspension under Section 16.2.8.1

16.2.8.3 City shall have the right and authority to order suspension of Work, in whole or in part, for reasons other than those in Section 16.2.8.1 If City purports to order suspension of Work under Section 16.2.8.1 but it is finally determined under the Contract Dispute Procedures that no grounds under Section 16.2.8.1 exist for such suspension, then it shall be deemed a suspension under this Section 16.2.8.3

16.2.8.4 Non-Profit Entity shall promptly comply with any such suspension order, even if Non-Profit Entity disputes the grounds for suspension. Non-Profit Entity shall promptly recommence the Work upon receipt of Notice from City directing Non-Profit Entity to resume work. City will lift the suspension order promptly after Non-Profit Entity fully cures and corrects the applicable breach or failure to perform or any other reason for the suspension order ceases to apply.

16.2.8.5 Without limiting Non-Profit Entity's rights with respect to a Compensable Delay Event under clause (q) of the definition thereof , in case of suspension of work for any cause, Non-Profit Entity shall be responsible for the Project and shall take such precautions as may be necessary to prevent loss or damage to the materials, equipment and Work, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at Non-Profit Entity's expense.

16.2.9 Other Rights and Remedies

Subject to the limitations of liability of Non-Profit Parent set forth in this Agreement, City shall also be entitled to exercise any other rights and remedies available under this Agreement, or available at law.

16.2.10 Cumulative, Non-Exclusive Remedies

Subject to the exception specified in Section 16.1.1(j) regarding failures that constitute a D&C Noncompliance Event or D&C Failure Event not being considered defaults under Section 16.1.1(j), each right of City under this Agreement shall be cumulative and shall be in addition to every other right provided under this Agreement or at law, and the exercise or beginning of the exercise by City of any one or more of any of such rights or remedies shall not preclude the simultaneous or later exercise by City of any or all other such rights or remedies.

16.3 Default by City; Cure Periods

16.3.1 City Default

City shall be in breach under this Agreement upon the occurrence of any one or more of the following events or circumstances (each a "**City Default**"):

(a) City fails to make any payment due to Non-Profit Entity under this Agreement when due, provided that such payment is not subject to a Contract Dispute;

(b) City ceases to be legally authorized to make any undisputed payment to the Non-Profit Entity under this Agreement; provided, however, that a failure to appropriate or an injunction or other legal or administrative constraint on making such payment shall not be considered a City Default; or

(c) any representation or warranty made by City to Non-Profit Entity in the Agreement is false in any material respect, materially misleading or inaccurate in any material respect when made or omits material information when made.

16.3.2 Cure Periods

City shall have the following cure periods to cure City Defaults:

16.3.2.1 Respecting a City Default under Section 16.3.1(a), a period of 45 days after Non-Profit Entity delivers to City Notice of such City Default; and

16.3.2.2 Respecting a City Default under Section 16.3.1(c), a period of 90 days after Non-Profit Entity delivers to City Notice of such City Default; provided that:

(a) if the City Default is of such a nature that the cure cannot with diligence be completed within such time period and City has commenced meaningful steps to cure promptly after receiving the default Notice, City shall have such additional period of time, up to a maximum cure period of 180 days, as is reasonably necessary to diligently effect cure; and

(b) cure will be regarded as complete when the adverse effects of the breach are cured.

16.4 Non-Profit Entity Remedies for City Breach

16.4.1 Termination

Refer to Section 17.4 (Non-Profit Entity Rights to Terminate) for provisions regarding Non-Profit Entity's right to terminate for City Default.

16.4.2 Interest on Late Payment

If City fails to make payments of undisputed Availability Payments or the Milestone Payments that are due and owing to Non-Profit Entity under this Agreement, then Non-Profit Entity shall be entitled to interest at the Late Payment Rate commencing 90 days after the due date thereof in accordance with Section 11.7 (Interest on Late Payments and Overpayments).

16.4.3 Limitations on Remedies

16.4.3.1 Non-Profit Entity shall have no right to seek, and irrevocably waives and relinquishes any right to, non-monetary relief against City, except for (a) any sustainable action for relief available in mandamus, (b) any sustainable action to stop, restrain or enjoin use, reproduction, duplication, modification, adaptation or disclosure of NPE Intellectual Property in violation of the licenses granted, or to specifically enforce City's duty of confidentiality, under Section 21.4 (Intellectual Property), (c) declaratory relief under the Contract Dispute Procedures declaring the rights and obligations of the Parties under the Contract Documents, or (d) declaratory relief under the Contract Dispute Procedures declaring specific terms that shall bind the Parties.

16.4.3.2 If City wrongfully withholds an approval or consent required under this Agreement, or wrongfully issues an objection to or disapproval of a Submittal or other matter under this Agreement, Non-Profit Entity's sole remedies against City shall be compensation and extensions of time, each to the extent provided in Articles 13 (General Provisions Applying to Delay Events) and 14 (Compensation and Other Relief for Delay Events). Non-Profit Entity shall have no right to suspend Work.

16.4.4 Remedies at Law and in Equity

Subject to Section 16.4.3 (Limitations on Remedies) and to the limitations of liability of Non-Profit Parent set forth in this Agreement, and except as specifically provided otherwise in this Agreement, upon breach of this Agreement by City, Non-Profit Entity may exercise any remedies available at law or in equity.

16.4.5 Non-Profit Entity Right to Suspend

Non-Profit Entity may suspend Work based on City's failure, after required Notice and the expiration of the applicable cure period, to pay undisputed amounts owing to Non-Profit Entity with a cumulative value of $1,000,000 or more, subject to the following:

(a) Non-Profit Entity shall provide City with Notice regarding its intent to suspend at least 30 days before implementing the suspension, and may implement the suspension only if the breach remains uncured as of the suspension date; and

(b) a suspension by Non-Profit Entity under this Section 16.4.5 (Non-Profit Entity Right to Suspend) shall be deemed to be a suspension of Work order issued by City for its convenience under Section 16.2.8.2, and the suspension order shall be deemed lifted upon Non-Profit Entity's receipt of payment in full of all undisputed amounts owing.

16.5 No Duplicative Payment

Notwithstanding any other provisions of this Agreement to the contrary, neither Party shall be entitled to recover compensation or make a claim under this Agreement with respect to any loss that it has incurred to the extent that it has already been compensated with respect to that loss under this Agreement or otherwise.

16.6 Limitation on Consequential Damages

16.6.1 Except as stated here, Non-Profit Entity shall have no liability to City for any type of special, consequential, or incidental damages arising out of or connected with Non-Profit Entity's performance of the Work. This limit of liability applies under all circumstances including the breach, completion, termination, suspension or cancellation of the services under this Agreement, and negligence or strict liability of Non-Profit Entity. This limit of liability, however, shall not apply to, limit or preclude:

(a) Non-Profit Entity's obligation to pay liquidated damages as set forth in the Contract Documents, including any credits, deductions or offsets for failure to meet performance requirements or pursuant to the noncompliance/deduction regime;

(b) damages caused by a NPE Fault described in clause (c) of the definition of "NPE Fault";

(c) Non-Profit Entity's obligations to indemnify, defend and hold City and other Indemnities harmless for Third Party Claims as set forth in the Contract Documents;

(d) Non-Profit Entity's liability damages that fall within the insurance coverages required under this Agreement;

(e) Non-Profit Entity's liability for statutory damages imposed by City as a Governmental Entity under applicable Law;

(f) statutory fines, penalties, and statutory damages, including punitive damages, treble damages, and statutory attorney fees and costs, including those due as a result of violations of environmental regulations and laws;

(g) amounts that Non-Profit Entity is obligated to reimburse City under the express provisions of this Agreement, including any Recoverable Costs and any express interest thereon;

(h) damages and other liability arising under claims by Third Parties for loss or damage to property or personal injuries, including wrongful death; or

(i) damages and other liability for infringement of any Intellectual Property right.

16.7 City Step-in Rights Under Project Implementation Agreement

16.7.1 If Non-Profit Entity has not fully and completely cured a NPE PIA Default by the expiration of the applicable cure period, if any, set forth in the Project Implementation Agreement, City may, subject to the terms of any Direct Agreement and in accordance with the terms and conditions of this Section 16.7 (City Step-in Rights Under Project Implementation Agreement), pay and perform all or any portion of Non-Profit Entity's obligations under the Project Implementation Agreement that are the subject of such NPE PIA Default.

16.7.2 Upon exercising its rights pursuant to Section 16.7.1, City may, to the extent necessary to cure a NPE PIA Default:

(a) perform or attempt to perform, or cause to be performed, Non-Profit Entity's obligations under the Project Implementation Agreement;

(b) Intentionally Omitted;

(c) execute all applications, certificates and other documents as may be required under the Project Implementation Agreement;

(d) make decisions respecting, assume control over and continue the Project Implementation Agreement as may be reasonably required;

(e) Intentionally Omitted;

(f) meet with, coordinate with, direct and instruct Contractors and Suppliers, process invoices and applications for payment from Contractors and Suppliers, pay Contractors and Suppliers, and resolve claims of Contractors and Suppliers;

(g) take any and all other actions and expend any other sums it may consider necessary to effect cure and undertake Non-Profit Entity's obligations under the Project Implementation Agreement; and

(h) prosecute and defend any action or proceeding incident to the Project Implementation Agreement.

16.7.3 Non-Profit Entity shall reimburse City on demand for its Recoverable Costs incurred in connection with the performance of any act or work authorized by this Section 16.7 (City Step-in Rights Under Project Implementation Agreement).

16.7.4 In addition to its continuing ownership of the Project Site and rights to have access to the Project Site throughout the Term, including the rights described in Section 6.7 (Coordination, Cooperation and Access), City and its Authorized Representatives, contractors, subcontractors, vendors and employees shall have the right to enter onto all Temporary Areas, exercisable at any time or times without Notice, for the purpose of carrying out City's step-in rights under this Section 16.7 (City Step-in Rights Under Project Implementation Agreement). Non-Profit Entity grants City a perpetual, non-rescindable right of entry onto the Temporary Areas for such purpose.

16.7.5 If City exercises any right to pay or perform under this Section 16.7 (City Step-in Rights Under Project Implementation Agreement), it nevertheless shall have no liability to Non-Profit Entity for the sufficiency, adequacy or quality of any such payment or performance, or for any effect of such payment or performance on the Work, the Project or the Project Implementation Agreement, unless caused by the gross negligence, recklessness or willful misconduct of City (in which case, City shall retain liability therefor). City and its Authorized Representatives, contractors, subcontractors, vendors and employees shall have no liability to Non-Profit Entity for any inconvenience or disturbance arising out of any entry onto the Project Site or Temporary Areas as contemplated by this Section 16.7 (City Step-in Rights Under Project Implementation Agreement), provided that the foregoing shall not absolve any Person of liability as a matter of law for its gross negligence, recklessness or willful misconduct.

16.7.6 Intentionally Omitted.

16.7.7 In exercising its rights under this Section 16.7 (City Step-in Rights Under Project Implementation Agreement), including determining the existence of an NPE PIA Default, City shall be entitled to fully and solely rely on a notice of NPE PIA Default received from Non-Profit Entity and/or Principal Project Company delivered pursuant to this Agreement or the Project Implementation Agreement.

ARTICLE 17. TERMINATION

17.1 Termination for Convenience; Condemnation

17.1.1 City may terminate this Agreement in whole, but not in part, if City determines in its sole discretion that termination is in City's best interest (a "**Termination for Convenience**").

17.1.2 City may exercise a Termination for Convenience by delivering to Non-Profit Entity a Notice of Termination for Convenience specifying the election to terminate and its effective date, which shall not be earlier than 30 days after the date of delivery of such Notice.

17.1.3 In the event of a Termination for Convenience, City shall pay Termination Compensation to Non-Profit Entity (or to the Collateral Agent as provided in the Direct Agreement) in an amount (without double counting) equal to:

(a) Lenders' Liabilities; plus

(b) NPE Employee and Contractor Breakage Costs; minus

(c) Account Balances; minus

(d) Insurance Proceeds; minus

(e) any D&C Period Deductions to the extent not deducted in full from Milestone Payment 2 minus

(f) any other payments from the Non-Profit Entity that are due and payable to the City under this Agreement, but remain unpaid.

17.1.4 If:

(a) City confiscates, sequesters, condemns or appropriates the NPE's Interest or any material part thereof; or

(b) as a direct result of a City ordinance Non-Profit Entity is unable to perform all or substantially all of its obligations under the Contract Documents for a period of 180 consecutive days or more,

then this Agreement shall be deemed terminated for convenience and City shall pay compensation to Non-Profit Entity in the amount described in Section 17.1.3.

17.2 Termination for Force Majeure Termination Events or Insurance Unavailability

17.2.1 Notice of Conditional Election to Terminate – Force Majeure Termination Events

17.2.1.1 Subject to Section 17.2.2, either Party may deliver to the other Party Notice of its conditional election to terminate this Agreement ("**Notice of Conditional Termination**") if a Force Majeure Event occurs prior to Substantial Completion (excluding a Force Majeure Event under clauses (i) or (j) of the definition of Force Majeure Event) ("**Force Majeure Termination Event**") has occurred and:

(a) (i) as a direct result of the Force Majeure Termination Event, Non-Profit Entity is unable to perform all or substantially all of its obligations under the Contract Documents for a period of 255 consecutive days or more; and (ii) such inability to perform its obligations is not attributable to a concurrent non-Force Majeure Termination Event; and

(b) Non-Profit Entity could not have mitigated or cured such result through the exercise of diligent efforts; and

(c) such result is continuing at the time of delivery of the written Notice; and

(d) the written Notice sets forth in reasonable detail a description of the Force Majeure Termination Event, a description of the direct result and its duration, and a statement that the notifying Party's intends to terminate this Agreement.

17.2.1.2 If a Force Majeure Event occurs after Substantial Completion, only the City shall have the right to terminate or continue this Agreement, exercisable in its sole discretion at any time.

17.2.2 No Right to Termination Election

Notwithstanding Section 17.2.1, if, following the occurrence of any Force Majeure Termination Event that occurs prior to Substantial Completion results in damage or partial destruction of the Project:

(a) the conditions listed in Section 17.2.1.1 (Notice of Conditional Election to Terminate – Force Majeure Termination Events) are satisfied;

(b) insurance proceeds are available to fund the work required to remedy the effects of the Force Majeure Termination Event; and

(c) the Parties agree to a restoration plan in respect of such work required to remedy the effect of the Force Majeure Termination Event,

then neither Party shall have the right to elect to terminate this Agreement pursuant to Section 17.2.1.1 (Notice of Conditional Election to Terminate – Force Majeure Termination Events).

17.2.3 Non-Profit Entity Options Upon City Notice

17.2.3.1 For a Force Majeure Event that occurs prior to Substantial Completion, if City delivers a Notice of Conditional Termination prior to Substantial Completion, Non-Profit Entity shall have the option either to accept such Notice or to continue this Agreement in effect by delivering to City Notice of Non-Profit Entity's choice not later than 30 days after City delivers its Notice. If Non-Profit Entity does not deliver such Notice within such 30 day period or the City delivers a Notice of Conditional Termination after Substantial Completion, then Non-Profit Entity shall be deemed to have accepted City's election to terminate this Agreement.

17.2.3.2 If Non-Profit Entity delivers timely Notice under Section 17.2.3.1 choosing to continue this Agreement in effect, then:

(a) City shall have no obligation to compensate Non-Profit Entity for any Extra Work Costs, Financing Delay Costs, Delay Costs, costs of restoration, repair or replacement arising out of the Force Majeure Termination Event and incurred after the date on which City gives written Notice of conditional election to terminate under this Section 17.2 (Termination for Force Majeure Events or Insurance Unavailability), except as provided in Section 17.2.3.2(b);

(b) if the Force Majeure Termination Event occurred before the Substantial Completion Date and resulted in a Critical Path delay, Non-Profit Entity shall be entitled to an extension of the applicable deadlines in accordance with Section 14.1.2 (Extension of Deadlines for General Delay Events); and

(c) this Agreement shall continue in full force and effect and City's election to terminate shall not take effect.

17.2.4 City Options Upon Non-Profit Entity Notice

17.2.4.1 For a Force Majeure Event that occurs prior to Substantial Completion, if Non-Profit Entity delivers a Notice of Conditional Termination prior to Substantial Completion pursuant to Section 17.2.1.1, including an estimate (with supporting documentation) of the compensation that would be paid or reimbursed to Non-Profit Entity under Section 17.2.4.2, City shall have the option either: (a) to accept such Notice; or (b) to continue this Agreement in effect if City in its reasonable discretion determines that the Project can be completed or re-opened, as applicable, on a commercially reasonable basis. City shall exercise such option by delivering to Non-Profit Entity written Notice of City's choice not later than 30 days after Non-Profit Entity delivers its Notice of Conditional Termination. If City does not deliver such written Notice within such 30-day period, then it shall be conclusively deemed to have accepted Non-Profit Entity's election to terminate this Agreement.

17.2.4.2 If City delivers timely written Notice under Section 17.2.4.1 choosing to continue this Agreement in effect, then:

(a) subject to Section 13.8 (Burden of Proof and Mitigation), City shall be obligated to pay or reimburse Non-Profit Entity an amount equal to (without double-counting):

(i) Financing Delay Costs and the Extra Work Costs directly caused by the Force Majeure Termination Event which are incurred after the date Non-Profit Entity delivers its written Notice of conditional election to terminate; plus

(ii) Delay Costs which are incurred after the date Non-Profit Entity delivers its written Notice of conditional election to terminate;

(b) From and after the date which is 255 days after the occurrence of the Force Majeure Termination Event, Non-Profit Entity shall not be subject to D&C Period Deductions or D&C Noncompliance Points with respect to such Force Majeure Termination Event; and

(c) this Agreement shall continue in full force and effect and Non-Profit Entity's election to terminate shall not take effect for the period specified in City's

written Notice under this Section 17.2.4 (City Options Upon Non-Profit Entity Notice) or such longer period as may be mutually agreed to in writing by the Parties.

17.2.5 No Waiver

No election by Non-Profit Entity under Section 17.2.3 (Non-Profit Entity Options Upon City Notice) or by City under Section 17.2.4 (City Options Upon Non-Profit Entity Notice) to continue this Agreement in effect shall prejudice or waive such Party's right to thereafter, at any time, give a Notice of conditional election to terminate with respect to the same or any other Force Majeure Termination Event.

17.2.6 Termination for Insurance Unavailability

If it becomes apparent that insurance required under the Contract Documents is not available as a result of Insurance Unavailability, City may deliver to Non-Profit Entity Notice of its election to terminate this Agreement for Insurance Unavailability and the effective date of the termination, which shall not be earlier than 30 days after the date of delivery of such Notice. Such Notice shall include reasonable details regarding the affected coverages and associated risks, as well as the estimated cost of premiums if Commercially Reasonable Insurance Rates are not available. In the event of a termination for Insurance Unavailability, City shall pay Termination Compensation to Non-Profit Entity (or to the Collateral Agent as provided in the Direct Agreement) calculated in accordance with Section 17.2.8 (Termination Compensation for Force Majeure Termination Events and Insurance Unavailability).

17.2.7 Concurrent Notices

If City and Non-Profit Entity deliver concurrent Notices of Conditional Termination under this Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), Non-Profit Entity's Notice shall prevail. Notices shall be deemed to be concurrent if each Party sends its Notice before actually receiving the Notice from the other Party. Knowledge of the other Party's Notice obtained before actual receipt of the Notice shall have no effect on determining whether concurrent Notice has occurred.

17.2.8 Termination Compensation for Force Majeure Termination Events and Insurance Unavailability

If (i) either Party accepts, or is deemed to accept, the other Party's conditional election to terminate under Section 17.2.3 (Non-Profit Entity Options Upon City Notice) or Section 17.2.4 (City Options Upon Non-Profit Entity Notice) or (ii) City exercises its unilateral right to terminate pursuant to Section 17.2.1.2 or Section 17.2.6, as applicable, then this Agreement shall be deemed terminated on an Early Termination Date that is 30 days after the date of acceptance or deemed acceptance of the conditional election to terminate; and Non-Profit Entity will be entitled to Termination Compensation calculated as follows (calculated at the Early Termination Date and without double-counting):

(a) Lenders' Liabilities plus

(b) NPE Employee and Contractor Breakage Costs; minus

(c) Account Balances; minus

(d) Insurance Proceeds; minus

(e) any D&C Period Deductions to the extent not deducted in full from Milestone Payment 2; minus

(f) any other payments from the Non-Profit Entity that are due and payable to the City under this Agreement, but remain unpaid.

17.3 Termination for NPE Default

17.3.1 NPE Defaults Triggering City Termination Rights

17.3.1.1 Subject to the rights of the Lenders pursuant to any Direct Agreement, in the event that:

(a) any NPE Default occurs and has not been cured within the applicable cure period, if any, set out in Section 16.1.2 (Default Notice and Cure Periods) or (if relevant) in accordance with any cure plan accepted by City under Section 15.8 (Cure Plan for Persistent NPE Default); or

(b) any NPE Default occurs for which there is no cure period under Section 16.1.2 (Default Notice and Cure Periods);

(each a "**Default Termination Event**")

City may terminate this Agreement with immediate effect upon written Notice to Non-Profit Entity.

17.3.1.2 Termination of this Agreement for a Default Termination Event in accordance with this Section 17.3 (Termination for NPE Default) will take effect on the date stated in the Notice given by City to Non-Profit Entity under Section 17.3.1.1.

17.3.2 Compensation to Non-Profit Entity

17.3.2.1 Subject to Section 17.3.2.2, if City issues a Notice of termination of this Agreement due to a NPE Default:

(a) before the Substantial Completion Date, Non-Profit Entity will be entitled to Termination Compensation in an amount equal to the lesser of:

(i) the D&C Work Value; and

(ii) the amount equal to:

(A) Lenders' Liabilities; minus

(B) Account Balances; minus

(C) Insurance Proceeds (excluding proceeds of personal injury, property damage or other Third Party liability insurance payable to or for the account of a Third Party); minus

(D) any D&C Period Deductions to the extent not deducted in full from Milestone Payment 2; minus

(E) any other payments from the Non-Profit Entity that are due and payable to the City under this Agreement, but remain unpaid; or

(b) on or after the Substantial Completion Date, Non-Profit Entity will be entitled to Termination Compensation in an amount equal to:

(i) Lenders' Liabilities; minus

(ii) the costs incurred by City or any party acting on City's behalf to repair unremedied /Defects that were identified and for which Notice was provided during the Warranty Period and are Defects for which Non-Profit Entity is responsible under this Agreement; minus

(iii) Account Balances; minus

(iv) Insurance Proceeds (excluding proceeds of personal injury, property damage or other Third Party liability insurance payable to or for the account of a Third Party); minus

(v) any D&C Period Deductions to the extent not deducted in full from Milestone Payment 2; minus

(vi) any other payments from the Non-Profit Entity that are due and payable to the City under this Agreement, but remain unpaid.

17.3.2.2 If the calculation described in Section 17.3.2.1 results in a negative number, the negative value shall represent damages recoverable by City in accordance with Section 16.2.6.2.

17.3.3 Finality

If City issues Notice of termination of this Agreement due to a NPE Default, termination shall be effective and final regardless of whether City is correct in determining that it has the right to terminate for NPE Default. If it is determined that City lacked such right, then such termination shall be treated as a Termination for Convenience as provided in Section 17.1 (Termination for Convenience; Condemnation) for the purpose of determining the Termination Compensation due.

17.4 Non-Profit Entity Rights to Terminate

17.4.1 Termination for City Default

17.4.1.1 If a City Default under Section 16.3.1 (City Default) remains uncured following (a) Notice and expiration of the applicable cure period under Section 16.3.2 (Cure Periods), and (b) Non-Profit Entity's compliance with the warning requirements set forth in Section 17.4.1.2, Non-Profit Entity shall have the right to terminate this Agreement, effective immediately upon delivery of written Notice of termination to City. In the event of such termination, City shall pay Termination Compensation to Non-Profit Entity equal to the amount described in Section 17.1.3.

17.4.1.2 Non-Profit Entity shall provide a warning Notice to City at least 15 Business Days before terminating, which Notice may not be delivered until 30 Business Days after delivery of the Notice under Section 16.3.2.1 Non-Profit Entity shall provide a second warning Notice to City at least five Business Days before terminating, which Notice may not be delivered until 10 Business Days after delivery of the first warning Notice. If City fails to effect cure within five Business Days after the date of delivery of the second warning Notice, Non-Profit Entity shall have the right to terminate this Agreement in accordance with Section 17.4.1.1

17.4.2 Termination for Suspension of Work

17.4.2.1 If City issues a suspension order under Section 16.2.8.3 that suspends the Work for a period of 270 days or more, and provided that (a) such suspension is not the result of any NPE Fault; and (b) Non-Profit Entity has delivered a warning Notice to City at least 15 days before terminating, Non-Profit Entity shall have the right to terminate this Agreement, effective immediately upon delivery of written Notice of termination to City. In the event of such termination, Non-Profit Entity will be entitled to Termination Compensation equal to the amount described in Section 17.1.3.

17.4.2.2 Non-Profit Entity may not terminate under this Section 17.4.2 (Termination for Suspension of Work) if, at the time Non-Profit Entity's right to terminate would arise, circumstances exist entitling either Party to terminate under Sections 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), 17.3 (Termination for NPE Default), 17.4.3 (Termination Due to Court Ruling) or 17.5 (Termination if Financial Close Fails to Occur).

17.4.3 Termination Due to Court Ruling

Termination Due to Court Ruling means, and becomes effective upon: (a) issuance of a final order by a court of competent jurisdiction after exhaustion of all appeals to the effect that this Agreement is void, voidable, and/or unenforceable or impossible to perform in its entirety for reasons beyond the reasonable control of Non-Profit Entity; or (b) issuance of a final order by a court of competent jurisdiction after exhaustion of all appeals upholding the binding effect on Non-Profit Entity and/or City of a Change in Law that causes impossibility of performance of a fundamental obligation by Non-Profit Entity or City under the Contract Documents or impossibility of exercising a fundamental right of Non-Profit Entity or City under the Contract Documents. The final court order shall be treated as the Notice of termination. In the event of such termination, Non-Profit Entity will be entitled to compensation in an amount equal to the amount described in Section 17.2.8 (Termination Compensation for Force Majeure Termination Events and Insurance Unavailability); provided that if the Termination Due to Court Ruling is caused solely and directly by a City Default or a City Fault, Non-Profit Entity will be entitled to Termination Compensation in the amount described in Section 17.1.3.

17.5 Termination if Financial Close Fails to Occur

Sections 3.6 (No-Fault Termination) and 3.7 (Non-Profit Entity's Failure to Achieve Financial Close) set forth the terms applicable to termination before Financial Close.

17.6 Transition Procedures and Duties

The provisions of this Section 17.6 (Transition Procedures and Duties) shall apply upon the achievement of Substantial Completion, and on termination of this Agreement. Non-Profit Entity

shall timely comply with such provisions independently of, and without regard to, the timing for determining, adjusting, settling and paying any amounts due Non-Profit Entity or City on account of termination. If City determines that Non-Profit Entity has failed to comply with the provisions of this Section 17.6 (Transition Procedures and Duties) in connection with a termination, then upon Notice from City to Non-Profit Entity making reference to this Section 17.6 (Transition Procedures and Duties), Non-Profit Entity acknowledges and agrees it shall be deemed to have surrendered its access rights in accordance with the Contract Documents.

17.6.1 Performance of Work Pending Early Termination Date

In any case where Notice of termination precedes the effective Early Termination Date, Non-Profit Entity shall continue performing the Work in accordance with all the standards, requirements and terms of the Contract Documents.

17.6.2 Transition Plan

17.6.2.1 Within 90 days before the achievement of Substantial Completion, or, if applicable, within three days after Non-Profit Entity receives or delivers a Notice of termination, Non-Profit Entity shall meet and confer with City for the purpose of developing a transition plan for: (a) in the case of termination, the orderly transition of remaining Work and demobilization; or (b) in the case of the achievement of Substantial Completion, demobilization (other than in respect of the achievement of Final Acceptance and the performance of Warranty Work) and, in the case of both achievement of Substantial Completion or termination, transfer of Project management, care, custody and control to City. The Parties shall use diligent efforts to complete preparation of the transition plan within 30 days before the achievement of Substantial Completion or, if applicable, within 15 days after the date Non-Profit Entity receives or delivers the Notice of termination, as the case may be.

17.6.2.2 The transition plan shall include a plan to promptly deliver to City or its designee possession of all the property, data and documents described in Sections 17.6.5.1 and 17.6.5.2.

17.6.2.3 The transition plan shall include an estimate of costs and expenses to be incurred by both Parties in connection with implementation of the transition plan. Neither Party shall be liable for the other Party's transition costs and expenses, regardless of the reason for termination.

17.6.2.4 The transition plan shall:

(a) be in form and substance acceptable to City and shall include and be consistent with the other provisions and procedures in this Section 17.6 (Termination Procedures and Duties);

(b) in the case of achievement of Substantial Completion, for the calendar month after Substantial Completion, provide, in connection with City's operation of the systems, technical support and other necessary management support from Non-Profit Entity similar to the demonstration tests performed by Non-Profit Entity before Substantial Completion; and

(c) if required by City, provide for Non-Profit Entity to continue to perform specified Work during the period between the Termination Date and the

effective date of the release and discharge, following payment of Termination Compensation.

17.6.3 Relinquishment and Possession of Project

17.6.3.1 On or as soon as possible after the Termination Date or the Substantial Completion Date as provided in the approved transition plan, Non-Profit Entity shall, subject to its obligations to achieve Final Acceptance and to perform Warranty Work hereunder, relinquish and surrender care, custody and control of the Project, to City, and shall cause all persons and entities claiming under or through Non-Profit Entity to do likewise (except as may be set forth in any Direct Agreement).

17.6.3.2 On the later of the Termination Date or the date Non-Profit Entity relinquishes all care, custody and control as provided in the transition plan, City shall have the exclusive right to, and shall assume responsibility at its expense for, care, custody and control of the Project and the Project Site, subject to Non-Profit Entity's obligations to achieve Final Acceptance and to perform Warranty Work hereunder, if applicable, and any rights to damages against Non-Profit Entity where the termination is due to a Termination for NPE Default.

17.6.3.3 In the context of a termination of this Agreement prior to the expiry of the Term, if the transition plan developed under Section 17.6.2 (Transition Plan) requires Non-Profit Entity to perform any obligations under this Agreement after the Termination Date, this Agreement will remain in full force and effect only to the extent necessary for Non-Profit Entity to perform such obligations. On: (a) the Substantial Completion Date, for certainty, the Non-Profit Entity's rights of access to the Site and the Infrastructure Facility shall remain in full force and effect for purposes of the achievement of Final Acceptance and the performance of Warranty Work; and (b) the Termination Date, or such later date provided in the approved transition plan, City grants to Non-Profit Entity a right to access the Project Site for the limited purpose of carrying out Non-Profit Entity's obligations contemplated by this Section 17.6 (Termination Procedures and Duties), including execution of the transition plan contemplated in Section 17.6.2 (Transition Plan). This right of access described in clause (b) above is subject to rescission by City for Non-Profit Entity's failure to perform any of its obligations under this Agreement after the Termination Date, and shall automatically expire upon Non-Profit Entity's fulfillment of such obligations.

17.6.4 Continuance or Termination of Key Contracts Before Work Completion

17.6.4.1 If, as of the Termination Date, Non-Profit Entity has not completed the Work, in whole or in part, City may elect, by written Notice to Non-Profit Entity to continue in effect some or all of the Key Contracts or to require their termination. If City elects to continue any Key Contracts, then Non-Profit Entity shall execute and deliver (or shall cause the relevant Key Contractor(s) to execute and deliver) to City a written assignment, in form and substance acceptable to City, acting reasonably, of all Non-Profit Entity's (or Key Contractor's) right, title and interest in and to such Key Contracts, and City shall assume in writing Non-Profit Entity's (or such Key Contractor's) obligations thereunder that arise from and after the Termination Date.

17.6.4.2 If City elects (or is deemed to elect) to require termination of any Key Contracts, then Non-Profit Entity shall:

(a) take such steps as are necessary to terminate the relevant Key Contracts, including providing Notice to each Key Contractor that its Key Contract is

being terminated and that each of them is to stop Work on the date and to the extent specified in the Notice of termination and stop and cancel orders for materials, services or facilities, unless otherwise approved by City;

(b) promptly and orderly demobilize and secure in a safe manner the Project Site in a manner satisfactory to City, remove all debris and waste materials and complete any Hazardous Materials Management Work already in process, except as otherwise approved by City;

(c) take such other actions as are necessary or appropriate to mitigate further costs;

(d) subject to City's reasonable prior approval, settle all outstanding liabilities and all claims arising out of, relating to or resulting from such Key Contracts;

(e) as a condition to City's obligation to make payments to Non-Profit Entity under this Article 17 (Termination) and under the requirements of the transition plan, cause each of the Key Contractors to execute and deliver to City a written assignment, in form and substance acceptable to City, of all of their interest in (i) all Regulatory Approvals, Third Party agreements and permits pertaining to the Project or the Work (excluding Subcontracts), provided that City assumes in writing all of the Key Contractor's obligations under said approvals, agreements and permits that arise after the Termination Date; and (ii) all warranties, to the extent assignable, claims and causes of action held by each of them against Subcontractors and other Third Parties pertaining to the Project or the Work, provided that Non-Profit Entity shall retain the right to pursue any cause of action against the Subcontractor or other Third Parties for damages incurred by Non-Profit Entity; and

(f) as a condition to City's obligation to make payments to Non-Profit Entity under this Article 17 (Termination) and under the requirements of the transition plan, carry out such other reasonable directions as City may give for termination of the Work in accordance with the transition plan.

17.6.5 Other Close-Out Activities

17.6.5.1 Within 30 days after the Substantial Completion Date, or within 30 days after any earlier Notice of termination is delivered, Non-Profit Entity shall deliver to City a true and complete list of all materials, goods, machinery, equipment, hardware, parts, supplies and other tangible property in inventory or storage (whether then held by Non-Profit Entity or any Person on behalf of or for the account of Non-Profit Entity) for use in or respecting the Work or the Project, or on order or previously completed but not yet delivered from Suppliers for use in or respecting the Work or the Project. In addition, on or as soon after the Substantial Completion Date or Termination Date, as applicable, as is possible or as is provided in the approved transition plan, Non-Profit Entity shall transfer title through bills of sale or other documents of title, as directed by City, and deliver to City's Authorized Representative, all such materials, goods, machinery, equipment, hardware, parts, supplies and other property, provided City assumes in writing all of Non-Profit Entity's obligations under any contracts relating to the foregoing that arise after the later of the Termination Date or the effective date of the transfer.

17.6.5.2 Within (y) 30 days after the Substantial Completion Date; or (z) 30 days after any earlier Notice of termination is delivered, Non-Profit Entity shall provide City with a true and complete list of all the data and documents identified in this Section 17.6.5.2. Subject to Sections 21.4 (Intellectual Property) and 21.5 (Intellectual Property Escrows), Non-Profit Entity shall execute and deliver to City an executed bill of sale or other written instrument, in form and substance reasonably acceptable to City, assigning and transferring to City the following:

(a) all completed or partially completed drawings (including plans, elevations, sections, details and diagrams), specifications, designs, Design Documents, Record Documents, plans, surveys, and other documents and information pertaining to the design or construction of the Project or the Utility Adjustments;

(b) all samples, borings, boring logs, geotechnical data and similar data and information relating to the Project or the Project Site;

(c) all Books and Records, reports, test reports, studies and other documents of a similar nature relating to the Work, the Project or the Project Site; and

(d) all Intellectual Property, and IP Materials, documents evidencing licenses of NPE Intellectual Property and Third Party IP to City, other work product and other materials relating to all such Intellectual Property and NPE Intellectual Property.

Such bill of sale or other instrument shall be delivered to City as provided in the approved transition plan (or if not specified in the transition plan, shall be delivered on the Termination Date or as soon thereafter as possible), and shall be accompanied by originals or copies, as appropriate, of all of the materials described therein.

17.6.5.3 Non-Profit Entity shall take all action that may be necessary, or that City may direct, for the protection and preservation of the Project, the Work and such materials, goods, machinery, equipment, hardware, parts, supplies, data, documentation and other property.

17.6.5.4 On or as soon as possible after the Termination Date or as provided in the approved transition plan, Non-Profit Entity shall execute and deliver to City a written assignment, in form and substance acceptable to City, all of Non-Profit Entity's interest in any IP Escrows or similar arrangements for the protection of Source Code and Source Code Documentation of others used for or relating to the Project or the Work.

17.6.5.5 On or as soon as possible after the Termination Date or as provided in the approved transition plan, Non-Profit Entity shall execute and deliver to City a written assignment, in form and substance acceptable to City, of all Non-Profit Entity's interest in all warranties, claims and causes of action held by Non-Profit Entity against Third Parties in connection with the Project or the Work, including claims under casualty and business interruption insurance, except to the extent that City has already received credit for such matters in calculating Termination Compensation amounts, in which case they may be pursued by Non-Profit Entity for its own account.

17.6.5.6 Non-Profit Entity shall otherwise assist City in such manner as City may require before and for a reasonable period following the Termination Date to ensure the orderly transition of management, care, custody and control of the Project, to City, and shall, if

appropriate and if requested by City, take all steps as may be necessary to enforce the provisions of the Key Contracts pertaining to the surrender of Project management, care, custody and control.

17.6.5.7 For a period of four years following the Termination Date, Non-Profit Entity shall maintain a secure archive copy of all electronic data transferred to City.

17.6.6 Calculation of Compensation

17.6.6.1 Within 30 days after the Early Termination Date for termination pursuant to Section 17.3 (Termination for NPE Default), and within 15 days after the Early Termination Date for termination pursuant to Section 17.1 (Termination for Convenience; Condemnation), Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability) or Section 17.4 (Non-Profit Entity Rights to Terminate), Non-Profit Entity shall:

(a) provide City with a written statement prepared by the Collateral Agent as to (i) the Lenders' Liabilities (ii) the Account Balances, to the extent such accounts are controlled by the Collateral Agent, with documentation reasonably required by City to support such statement and the Collateral Agent's certification that such amounts are true and correct;

(b) provide a written statement as to the following amounts (without duplication of any Account Balances verified by the Collateral Agent under Section 17.6.6.1(a)(ii)), together with documentation reasonably required by City to support such statement and a certification that such amounts are true and correct:

(i) for termination pursuant to Section 17.1 (Termination for Convenience; Condemnation) or Section 17.4 (Non-Profit Entity Rights to Terminate), amounts described in Sections 17.1.3(b) through 17.1.3(e);

(ii) for termination pursuant to Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), amounts described in Sections 17.2.8(b) through 17.2.8(e); or

(iii) for termination pursuant to Section 17.3 (Termination for NPE Default), (A) the amounts described in clauses (a)-(b) of Section 17.3.2.1, and (B) the Insurance Proceeds (excluding proceeds of personal injury, property damage or other Third Party liability insurance payable to or for the account of a Third Party); and

(c) for termination pursuant to Section 17.1 (Termination for Convenience Condemnation), Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), or Section 17.4 (Non-Profit Entity Rights to Terminate), an estimate of any interest and fees that will accrue (on a daily basis) on the outstanding principal due to Lenders at the rate due (excluding default interest), under the Financing Documents over the period between the Early Termination Date and the anticipated date that the Termination Compensation will be paid by City.

17.6.6.2 From and after the Termination Date, except as otherwise stated in this Article 17 (Termination), Non-Profit Entity shall cease to have any right to (a) Availability Payments except for those accrued and owing before the Early Termination Date and (b) any other compensation, except as provided under Section 17.8.2.

17.7 Payment of Termination Compensation

17.7.1 For termination under Section 17.1 (Termination for Convenience; Condemnation) or Section 17.4 (Non-Profit Entity Rights to Terminate), provided Non-Profit Entity has timely provided to City the statements and information required under Section 17.6.6.1, City shall, within 120 days of the Early Termination Date, pay to Non-Profit Entity an amount equal to the:

(a) Termination Compensation; plus

(b) interest and fees that accrued on the outstanding principal due to Lenders (excluding default interest) under the Financing Documents over the period between the Early Termination Date and such payment date.

17.7.2 For termination under Section 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), provided Non-Profit Entity has timely provided to City the statements and information required under Section 17.6.6.1, City shall, within 120 days of the Early Termination Date, pay to Non-Profit Entity an amount equal to the:

(a) Termination Compensation; plus

(b) interest and fees that accrued on the outstanding principal due to Lenders (excluding default interest) under the Financing Documents over the period between the Early Termination Date and such payment date.

17.7.3 For termination pursuant to Section 17.3 (Termination for NPE Default), provided Non-Profit Entity has timely provided to City the statements and information required under Section 17.6.6.1, City shall, within 120 days of the Early Termination Date, pay to Non-Profit Entity an amount equal to the Termination Compensation.

17.7.4 If as of the date that City is required to tender payment of Termination Compensation under Sections 17.7.1, 17.7.2 or 17.7.3, as applicable, the Parties have not agreed upon the amount of Termination Compensation due, then:

(a) City shall proceed to make payment to Non-Profit Entity of the undisputed portion of the Termination Compensation;

(b) Within 30 days after receiving such payment Non-Profit Entity shall deliver to City written Notice of the additional amount of Termination Compensation that Non-Profit Entity in good faith determines is still owing (the "**disputed portion**"); and

(c) City shall pay the disputed portion of the Termination Compensation to Non-Profit Entity in immediately available funds after the disputed portion is agreed to by the Parties or otherwise determined to be payable pursuant to Article 18 (Partnering; Contract Dispute Procedures), as the case may be.

17.8 Effect of Termination

17.8.1 Except to the extent set out in Section 17.6.3.3, and regardless of City's prior Actual Knowledge or constructive knowledge thereof:

(a) no Contract or agreement to which Non-Profit Entity is a party as of the Termination Date shall bind City, unless City elects to assume such Contract or agreement; and

(b) except in the case of City's express written assumption, no such Contract or agreement shall entitle the contracting party to continue performance of work or services respecting the Project following Non-Profit Entity's relinquishment to City of Project care, custody and control, or to any claim, legal or equitable, against City.

17.8.2 Termination of this Agreement shall not:

(a) relieve Non-Profit Entity or any Surety of its obligation for any claims arising before the Termination Date;

(b) excuse either Party from any liability arising out of, related to or resulting from any default as provided in this Agreement that occurred before the Termination Date; and

(c) relieve City of claims of Non-Profit Entity to payment of Compensation Amounts for adverse cost and revenue impacts accruing before the Termination Date due to Compensable Delay Events that occurred before the Termination Date.

17.9 Liability after Termination; Final Release

Notwithstanding the foregoing, any termination of this Agreement under Sections 17.2 (Termination for Force Majeure Termination Events or Insurance Unavailability), 17.3 (Termination for NPE Default), 17.4.3 (Termination Due to Court Ruling) or 17.5 (Termination if Financial Close Fails to Occur) shall automatically extinguish any claim of Non-Profit Entity to payment of Compensation Amounts for adverse cost and revenue impacts accruing after the Early Termination Date due to Delay Events that occurred before termination. Except as otherwise expressly provided in this Agreement (other than Section 16.2.10 (Cumulative, Non-Exclusive Remedies)), if this Agreement is earlier terminated for any reason, then City's payment to Non-Profit Entity of the amounts required under this Agreement (if any) shall constitute full and final satisfaction of, and upon payment City shall be forever released and discharged from, any and all claims, causes of action, suits, demands and Losses, known or unknown, suspected or unsuspected, that Non-Profit Entity may have against City arising out of, relating to or resulting from this Agreement or termination thereof, the other Contract Documents, or the Project, excluding any proceedings that are pending as of 30 days after the Termination Date, remain unresolved at the time of such payment, and are not related to termination or Termination Compensation. Upon such payment, Non-Profit Entity shall execute and deliver to City all such releases and discharges, including a release pursuant to Civil Code Section 1542, as City may reasonably require to confirm the foregoing, but no such written release and discharge shall be necessary to give effect to the foregoing satisfaction and release.

17.10 Exclusive Termination Rights

This Article 17 (Termination) contain the entire and exclusive provisions and rights of City and Non-Profit Entity regarding termination of this Agreement, and each Party waives, to the maximum extent permitted by Law, any and all other rights to terminate at law.

17.11 Access to Information

Non-Profit Entity shall conduct all discussions and negotiations to determine any Termination Compensation, and shall share with City all data, documents and information pertaining to the termination, on an Open Book Basis.

ARTICLE 18. PARTNERING; CONTRACT DISPUTE PROCEDURES

18.1 Introduction

18.1.1 The Parties acknowledge fostering a collaborative working relationship during the entire Term is critical to early identification and resolution of issues, claims, and Contract Disputes. This Article 18 provides a structured approach for the Parties to address issues, claims, and Contract Disputes within the framework of informal project-level partnering and formal Contract Dispute procedures.

18.1.2 The procedures in this Article 18 (Partnering; Contract Dispute Procedures) are necessary for the City to address potential and actual Contract Disputes. Prior knowledge of potential Contract Disputes before Non-Profit Entity starts disputed Work, and proper documentation from Non-Profit Entity during that Work, are critical for the City to make informed decisions affecting the Project's budget and schedule.

18.2 Partnering

18.2.1 Collaborative Partnering

The Parties will engage in a partnering process to foster effective communication, enhance cooperation, and proactively address issues and claims to prevent them from escalating into Contract Disputes. The requirements for the partnering process are set forth in Part 3 of Section 01 31 33 (Partnering Procedures) of Division 10 of the Technical Requirements.

18.2.2 Confidentiality

In accordance with California Evidence Code sections 1119 and 1152, and Federal Rule of Evidence 408, and similar prohibitions, statements made during the partnering process, including the workshops and informal negotiations within the framework of the Issue Resolution Ladder, are confidential and not admissible or discoverable in any proceeding to resolve a Contract Dispute.

18.3 Contract Dispute Procedures

18.3.1 Disputes Generally

18.3.1.1 Outline of Dispute Process

The following is an outline of the sequential process for submitting and resolving Contract Disputes, with each step serving as a condition precedent for Non-Profit Entity to proceed to subsequent steps, beginning with the Notice of Potential Dispute. These steps must be completed prior to submission by Non-Profit Entity of any Contract Dispute to litigation in San Francisco Superior Court.

(a) Non-Profit Entity must submit a timely Notice of Contract Dispute in compliance with Section 18.3.2 before Non-Profit Entity can file a Contract Dispute.

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(b) Non-Profit Entity must submit a timely Contract Dispute in compliance with Section 18.3.3 before Non-Profit Entity can participate in the Issue Resolution Ladder.

(c) Non-Profit Entity must timely comply with the Issue Resolution Ladder provisions in compliance with Section 18.3.3.5 before Non-Profit Entity can participate in mediation.

(d) Non-Profit Entity must timely comply with the mediation provisions in Section 18.3.3.6 in order to exhaust its administrative remedies under this Agreement.

(e) Non-Profit Entity must complete all steps outlined in this Section 18.3.1.1 above prior to commencing litigation against the City for disputes arising out of or related to this Agreement that are not expressly excluded from the Contract Dispute process by Section 18.3.1.3. The Non-Profit Entity must also submit a timely Government Code Claim in order to commence litigation against the City for disputes arising out of or related to this Agreement pursuant to Section 18.3.3.7.

18.3.1.2 Disputed issues not timely raised and properly documented by Non-Profit Entity in conformance with this Section 18.3 will be deemed waived by Non-Profit Entity and may not be asserted in any subsequent litigation, or legal action. Furthermore, by executing this Agreement, Non-Profit Entity waives any and all claims or defenses of waiver, estoppel, or any other type of excuse of non-compliance with the Contract Dispute submission requirements.

18.3.1.3 The Contract Dispute procedures specified in this Section 18.3 (Contract Dispute Procedures) do not apply to the following:

(a) claims respecting penalties for forfeitures prescribed by statute or regulation that a government agency is specifically authorized to administer, settle, or determine;

(b) claims respecting personal injury, death, reimbursement, or other compensation arising out of or resulting from personal injury of death;

(c) claims by the City;

(d) stop notices.

(e) any matters that this Contract expressly states are final, binding, or not subject to Dispute resolution (including any Person's exercise of sole discretion);

(f) disputes regarding compliance with applicable Law, the rights of City to terminate this Contract, or indemnification;

(g) any claim for injunctive relief;

(h) claims arising solely in tort;

(i) any claim against an insurance company, including any Contractor Dispute that is covered by insurance;

(j) Disputes regarding matters under the jurisdiction of OSHA;

(k) issues regarding SBE participation;

(l) any claim for, or Dispute based on, remedies expressly created by statute;

(m) any Dispute that is actionable only against a Surety;

(n) any claim arising out of or relating to the Work where a third party is a necessary or appropriate party (excluding any NPE-Related Entity); and

(o) any claim or dispute that does not arise under the Contract.

18.3.2 Notice of Contract Dispute

18.3.2.1 Timely Submission

Non-Profit Entity must submit a Notice of Contract Dispute to the City within seven-Days of the event, activity, occurrence, or other cause that gives rise to the Contract Dispute. If the Contract Dispute pertains to a Change or the rejection of a Delay Event by the City, the seven-Day period starts when the City's Authorized Representative issues a final written decision denying, in whole or in part, the corresponding NPE Change Request or Relevant Event claim.

18.3.2.2 Content Requirements

Notices of Contract Dispute must include:

(a) description of the Contract Dispute's nature and circumstances;

(b) reasons Non-Profit Entity believes additional compensation or time may be due, including Contract Document references and citations supporting its position;

(c) good faith estimates of the potential cost and/or time impacts; and

(d) for Contract Disputes related to a disputed Relevant Event, identification of items in the Implementation Proposal that form the basis for Non-Profit Entity's performance the affected Work.

18.3.3 Contract Dispute

18.3.3.1 Timely Submission

(a) Non-Profit Entity must submit a Contract Dispute to the City no later than 30 Days after the City's receipt of the corresponding Notice of Contract Dispute.

18.3.3.2 Content Requirements of all Contract Disputes

Contract Disputes must include:

(a) cover letter;

(b) certification, signed by Non-Profit Entity's Authorized Representative, stating, under penalty of perjury, that:

(i) the Contract Dispute is made in good faith;

(ii) supporting data are accurate and complete, to the best of their knowledge and belief; and

(iii) the amount requested accurately reflects adjustment in compensation or time for which Non-Profit Entity believes the City is liable;

(c) narrative summary of Contract Dispute's merits and amount, and the specific provisions of Contract Documents under which the Contract Dispute is made;

(d) list and copy of documents relating to Contract Dispute:

(i) Contract Documents;

(ii) correspondence; and

(iii) Agreement Exhibits;

(e) detailed chronology of events and correspondence;

(f) analysis of Contract Dispute merit; and

(g) analysis of Contract Dispute cost (money and time).

18.3.3.3 Additional Requirements for Contract Disputes Relating to Delay Events Impacting the Critical Path

(a) In addition to the contents required under Section 18.3.3.3 (Content Requirements of all Contract Disputes), Contract Disputes related to Delay Events prior to Substantial Completion and seeking time extensions or challenging the assessment of delay or liquidated damages shall include a written analysis of all changes and all delays impacting the Critical Path, including a TIA.

(b) The TIA shall be updated to include the most recent information about the Project Schedule and the TIA shall include all activities represented or affected by the change, with activity numbers, durations, predecessor and successor activities, resources and cost, and with a narrative report, in form satisfactory to City, which compares the proposed new schedule to the Project Schedule, as appropriate. Non-Profit Entity shall reschedule activities not otherwise affected by the event, in order to take advantage of additional Float available as the result of the time extension. Any such rescheduling shall be reflected in the Project Schedule.

(c) The TIA shall account for all Delay Events in the relevant time frame with actual logic ties.

18.3.3.4 Procedure for City Review and Determination

(a) The City will review only a timely, certified, and properly documented Contract Dispute.

(b) The City will respond to a Contract Dispute in writing, within 45 days of receipt of such Contract Dispute. In its response, City will either grant or deny the Contract Dispute in whole or in part. If City does not respond to a Contract Dispute within the 45-day period, the Contract Dispute is deemed denied in its entirety.

18.3.3.5 Issue Resolution Ladder

After the City issues its written decision under Section 18.3.3.4 or the Contract Dispute is deemed denied in its entirety, the Parties shall utilize the Issue Resolution Ladder to negotiate and attempt to resolve the Contract Dispute in a timely and efficient manner before proceeding to mediation in accordance with Section 18.3.3.6. The requirements for the Issue Resolution Ladder are set forth in Part 3 of Section 01 31 33 (Partnering Procedures) of Division 10 of the Technical Requirements.

18.3.3.6 Non-binding Mediation

If the Parties are unable to resolve a Contract Dispute during the Issue Resolution Ladder process, either Party may submit the dispute to mediation, by written notice to the other, that a mutually acceptable third-party mediator shall be selected for the purpose of facilitating a negotiated resolution of the Contract Dispute. The Contract Dispute shall be submitted to mediation within 10 Days of the conclusion of the Issue Resolution Ladder process. The Parties will share the costs of the mediation equally. If the mediation is unsuccessful, the Non-Profit Entity shall submit a Government Claims Act claim pursuant to Section 18.3.3.7, Government Code Claim Requirement.

18.3.3.7 Government Code Claim

The timely submittal of a complete and proper NPE Change Request or Relevant Event claim and compliance with the procedures specified in this Article 18 (Partnering; Contract Dispute Procedures) shall operate to toll Non-Profit Entity's compliance with the Government Code dispute requirements under California Government Code section 900, et seq., and Administrative Code Chapter 10 until the Parties complete mediation. The Non-Profit Entity must comply with California Government Code section 900, et seq. and Administrative Code Chapter 10 prior to submitting a Contract Dispute to litigation in San Francisco Superior Court.

18.3.3.8 Joinder of Disputes

If any Contract Dispute arising under this Agreement raises issues which relate to any dispute raised by Principal Project Company under the Project Implementation Agreement, then Non-Profit Entity may join Principal Project Company's issues as part of any Contract Dispute to be resolved under and in accordance with this Agreement and Principal Project Company may be permitted to participate directly in any such dispute resolution process as provided under this Article 18; provided, however, that if it is determined pursuant to the dispute resolution process under Article 18 that there only remains a dispute under the Project Implementation Agreement,

such dispute shall be removed from the process set forth by this Agreement and resolved between Non-Profit Entity and Principal Project Company pursuant to the Project Implementation Agreement. Any submissions made by Principal Project Company shall be made within the time limits applicable to the delivery of submissions by Non-Profit Entity and concern only those matters which relate to the dispute between City and Non-Profit Entity under this Agreement.

ARTICLE 19. REPRESENTATIONS AND WARRANTIES

19.1 Non-Profit Entity Representations and Warranties

Non-Profit Entity represents and warrants to City, as of the Effective Date, as follows:

19.1.1 The Financial Model (a) was prepared by or on behalf of Non-Profit Entity in good faith, (b) uses financial formulas that, as of the Effective Date are mathematically and formulaically correct and suitable for making reasonable projections, (c) was audited and verified by an independent recognized model auditor immediately before the Effective Date, (d) fully discloses all cost, revenue and other financial assumptions and projections that Non-Profit Entity has used or is using in making its decision to enter into this Agreement and in making disclosures to potential equity investors and Lenders under the Initial Financing Agreements and (e) as of the Effective Date represents the projections that Non-Profit Entity believes in good faith are the most realistic and reasonable for the Project; subject to the understanding that such projections are based upon a number of estimates and assumptions and are subject to significant business, economic and competitive uncertainties and contingencies, and that Non-Profit Entity's stated belief regarding the projections does not constitute a representation that any of the assumptions are correct, that such projections will be achieved or that the forward-looking statements expressed in such projections will correspond to actual results.

19.1.2 Non-Profit Entity and Principal Project Company have evaluated the feasibility of performing the Work by the Contract Deadlines and for the Milestone Payments, Substantial Completion Development Fee and Availability Payments, and have reasonable grounds for believing and do believe, subject to the express terms of this Agreement, that such performance is feasible and practicable.

19.1.3 Non-Profit Entity and Principal Project Company have reviewed all applicable Laws relating to Taxes, and has taken into account all requirements imposed by such Laws in preparing the Financial Model.

19.1.4 Based upon the work undertaken by NPE-Related Entities pursuant to the Predevelopment Agreement, review of information provided by City, and other Reasonable Investigations undertaken by NPE-Related Entities, Non-Profit Entity and Principal Project Company have evaluated the constraints affecting the development, design, and construction of the Project, including the Project Site, surface and subsurface conditions discoverable through such investigation, the terms of the CEQA Approval, the terms of the NEPA Approval and requirements of applicable Laws, and, based on the foregoing, Non-Profit Entity and Principal Project Company have reasonable grounds for believing and does believe that the Project can be developed, designed, and constructed.

19.1.5 Non-Profit Entity and Principal Project Company have conducted a Reasonable Investigation of property to which it had access and other available information regarding conditions at the Project Site, and as a result of such investigation, Non-Profit Entity and Principal Project Company are familiar with and accept the physical requirements of the Work, subject to Non-Profit Entity's rights regarding Delay Events. Non-Profit Entity and the NPE-Related Entities shall undertake and complete the Work and the Project at their respective sole cost and without any additional compensation, any extension of time, excuse from compliance or other relief on account of such compliance, regardless of whether such compliance would require additional time for performance or additional design, construction, financing, labor,

equipment, supplies and/or materials not expressly provided for in the Contract Documents or would have an adverse effect on costs, subject only to Non-Profit Entity's rights regarding Delay Events.

19.1.6 Non-Profit Entity and Principal Project Company have familiarized themselves with the requirements of all applicable Laws and the conditions of any required Regulatory Approvals.

19.1.7 Non-Profit Entity and Principal Project Company have no reason to believe that any Regulatory Approval required to be obtained by Non-Profit Entity will not be granted in due course and thereafter remain in effect so as to enable the Work to proceed in accordance with the Contract Documents.

19.1.8 All Work furnished by or on behalf of Non-Profit Entity and any NPE-Entity will be performed by or under the supervision of Persons who hold all necessary licenses, certifications, registrations, permits or approvals to practice in the State, by personnel who are experienced, competent and skilled in their respective trades or professions, who are professionally qualified to perform the Work in accordance with the Contract Documents and who shall assume professional responsibility for the accuracy and completeness of the Design Documents, Construction Documents and other documents prepared or checked by them.

19.1.9 Non-Profit Entity is a limited liability company duly organized and validly existing under the laws of Delaware, has the requisite power and all required licenses to carry on its present and proposed activities, and has full power, right and authority to execute, and deliver this Agreement and to perform each and all of the obligations of Non-Profit Entity provided for under this Agreement. Non-Profit Entity is duly qualified to do business and is in good standing in the State as of the Effective Date, and will remain duly qualified and in good standing throughout the Term and for as long as any obligations remain outstanding under the Contract Documents.

19.1.10 The execution, delivery and performance of this Agreement has been duly authorized by all necessary action of Non-Profit Entity's governing body, each person executing this Agreement has been duly authorized to execute and deliver each such document on behalf of Non-Profit Entity and this Agreement has been duly executed and delivered by Non-Profit Entity.

19.1.11 No default under, violation of, or conflict with the governing instruments of Non-Profit Entity or any agreement, judgment or decree to which Non-Profit Entity is a party or is bound will result from (a) the execution and delivery by Non-Profit Entity of this Agreement, or (b) performance by Non-Profit Entity of its obligations under this Agreement.

19.1.12 The execution and delivery by Non-Profit Entity of this Agreement, and the performance by Non-Profit Entity of its obligations under this Agreement will not conflict with any Laws applicable to Non-Profit Entity that are valid and in effect on the date of execution and delivery. As of the Effective Date, Non-Profit Entity is not in breach of any applicable Law that would have a material adverse effect on the Work or the performance of any of its obligations under the Contract Documents.

19.1.13 This Agreement constitutes the legal, valid and binding obligation of Non-Profit Entity, enforceable against Non-Profit Entity in accordance with its terms, subject only to applicable

bankruptcy, insolvency and similar laws affecting the enforceability of the rights of creditors generally and the general principles of equity.

19.1.14 There is no action, suit, proceeding, investigation or litigation pending and served on Non-Profit Entity which challenges Non-Profit Entity's authority to execute, deliver or perform, or the validity or enforceability of, this Agreement or which challenges the authority of the representative of Non-Profit Entity executing this Agreement; and Non-Profit Entity has disclosed to City any pending and un-served or threatened action, suit, proceeding, investigation or litigation with respect to such matters of which Non-Profit Entity is aware. No current, pending or outstanding criminal, civil, or enforcement actions have been initiated against Non-Profit Entity by City or the State, and Non-Profit Entity agrees that it will immediately provide Notice to City if any such action is initiated during the Term.

19.1.15 Non-Profit Entity has disclosed to City in writing all organizational conflicts of interest of Non-Profit Entity and its Contractors of which Non-Profit Entity was actually aware, which have not been approved in writing by City.

19.1.16 As of the effective date of the relevant Key Contract, (a) each Key Contractor is duly organized, validly existing and in good standing under the laws of the state of its organization and is duly qualified to do business, and is in good standing, in the State, (b) the ownership interests (including options, warrants and other rights to acquire ownership interests) of each Key Contractor that is a single purpose entity formed for the Project are held by those Persons identified in a written certification delivered by or on behalf of Non-Profit Entity to City before such effective date; (c) each Key Contractor has the power and authority to do all acts and things and execute and deliver all other documents as are required to be done, observed or performed by it in connection with its engagement by Non-Profit Entity or Principal Project Company, as applicable; (d) each Key Contractor has (i) obtained and will maintain all required registrations, licenses, certifications, permits and approvals required under applicable Law as of such date and (ii) expertise, qualifications, experience, competence, and skills and is qualified to perform the Work for which it is responsible; (e) each Key Contractor will be required by the applicable Key Contract to comply with all health, safety and Environmental Laws in the performance of any work activities for, or on behalf of, Non-Profit Entity for the benefit of City; and (f) no Key Contractor is in breach of any applicable Law that would have a material adverse effect on any aspect of the Work.

19.1.17 Non-Profit Entity has not employed or retained, and Non-Profit Entity shall not employ or retain, any Person other than employees, agents, attorneys, consultants and advisors of a NPE-Related Entity, to solicit or secure this Agreement, and that it has not paid or agreed to pay any Person any fee or any other consideration contingent on the making of this Agreement.

19.1.18 Non-Profit Entity warrants that it owns, or will own, and has, or will have, good and marketable title and sufficient rights to all materials, Intellectual Property, equipment, tools and supplies furnished, or to be furnished, by any NPE-Related Entity that become part of the Project or are purchased for City for the development, operation, maintenance or repair of the Project, free and clear of all liens, royalties, fees or other charges of any kind or nature. All such materials, Intellectual Property, equipment, devices, or processes shall be delivered free of any claim of any Third Party for infringement of any Intellectual Property rights or ownership. Refer to Section 2.4.3 (Passage of Title) for provisions regarding transfer of title to City.

19.1.19 Non-Profit Entity warrants that the individual signing this Agreement on behalf of Non-Profit Entity is the properly authorized representative, agent, member or officer of Non-Profit Entity, that he/she has not, nor has any other member, employee, representative, agent or officer of Non-Profit Entity, directly or indirectly, to the best of the undersigned's knowledge, entered into or offered to enter into any combination, collusion or agreement to receive or pay, and that he/she has not received or paid, any sum of money or other consideration for the execution of this Agreement other than that which appears upon the face of this Agreement.

19.1.20 Principal Project Company is a limited liability company, duly organized and validly existing under the laws of the State of Delaware, has the requisite power and all required licenses to carry on its present and proposed activities, and has full power, right and authority to perform each and all of the obligations under the Project Implementation Agreement.

19.1.21 The activities under this Agreement and the Project Implementation Agreement are within the charitable purposes and mission of Non-Profit Entity and will not adversely affect Non-Profit Entity's tax exempt status.

19.2 City Representations and Warranties

City represents and warrants to Non-Profit Entity as follows:

19.2.1 The City and County of San Francisco is a charter city and municipal corporation duly organized and validly existing under the Constitution of the State of California. As of the Effective Date, City has full power, right and authority to execute, deliver this Agreement and City has full power, right and authority to perform its obligations under this Agreement.

19.2.2 Each person executing this Agreement on behalf of City is duly authorized to execute and deliver this Agreement, and this Agreement has been duly executed and delivered by City.

19.2.3 This Agreement has each been duly authorized by City, and constitutes a legal, valid and binding obligation of City enforceable against City in accordance with its terms.

19.2.4 As of the Effective Date, there is no action, suit, proceeding, investigation or litigation pending and served on City which challenges City 's authority to execute, deliver and perform this Agreement, or which challenges the validity or enforceability of, this Agreement or which challenges the authority of City officials executing this Agreement; and City has disclosed any pending action, suit, proceeding, investigation or litigation against City (including filed but un-served complaints of which City has Actual Knowledge) relating to this Agreement or the Project.

19.2.5 Neither the execution and delivery by City of this Agreement, nor the consummation of the transactions contemplated under this Agreement, is in conflict with or has resulted or will result in a default under or a violation of any agreement, judgment or decree to which City is a party or is bound.

19.2.6 The execution and delivery by City of this Agreement, and the performance by City of its obligations under this Agreement, will not conflict with any Laws applicable to City that are valid and in effect on the date of execution and delivery. City is not in breach of any applicable Law that would have a material adverse effect on the performance of any of its obligations under the Contract Documents.

19.2.7 City's execution and delivery of this Agreement is not subject to any requirement to obtain consent or approval of any other Person (including Governmental Entities), other than consents and approvals already obtained.

19.3 Special Remedies for Mutual Breach of Warranty

Notwithstanding any other provision of this Agreement, if any circumstance or event occurs that constitutes or results in a concurrent breach by both Non-Profit Entity and City of similar warranties referenced in Section 16.1.1(f) or 16.3.1(c) but does not also constitute or result in any other breach or default by either Party, then the only remedies shall be for the Parties to take action to rectify or mitigate the effects of such circumstance or event, to pursue severance and reformation of the Contract Documents in accordance with Section 23.11 (Severability), or Termination Due to Court Ruling in accordance with Section 17.4.3 (Termination Due to Court Ruling).

ARTICLE 20. ASSIGNMENT AND TRANSFER

20.1 Restrictions on Equity Transfers and Change of Control

20.1.1 Except as provided in Section 20.1.3, any:

(a) Change of Control of Non-Profit Entity or the Principal Project Company; or

(b) Equity Transfer that results in any Equity Member ceasing to own (directly or indirectly) the same percentage of the issued share capital, partnership or membership interests, as applicable, in Non-Profit Entity or Principal Project Company that it owned (directly or indirectly) as of the Financial Close Date,

shall be subject to City's prior written approval in accordance with Section 20.2 (Standards and Procedures for City Approval). The Non-Profit Entity acknowledges and agrees that the Change of Control limitations applicable to Non-Profit Entity herein shall be equally made applicable to the Principal Project Company under the Project Implementation Agreement and Non-Profit Entity shall not consent to any Change of Control of Principal Project Company without the prior written consent of City, which consent shall be given or withheld in a manner consistent with the terms and conditions of this Agreement as applies to Non-Profit Entity.

20.1.2 Neither an Equity Transfer to a Prohibited Person, nor a Change of Control to a Prohibited Person, is permitted at any time. Further, none of the events described in clauses (b) through (g) of the definition of Change of Control are permitted at any time if it would result in the direct or indirect ownership by a Prohibited Person of any interest in Non-Profit Entity.

20.1.3 Transfers and transactions within any of the exceptions described in clauses (a) through (g) of the definition of Change of Control are allowed at any time without necessity for City's approval, provided that:

(a) for an exception described in clause (a) (with respect to any initial public offering), or clause (b), (c) or (d), Non-Profit Entity shall deliver to City, on or before 10 Business Days before the effectiveness of the transfer or transaction, written Notice describing the transfer or transaction and (if applicable) the names of the transferor and transferee, together with documentation demonstrating that the transfer or transaction is within such an exception; and

(b) for an exception described in clause (a) (other than with respect to an initial public offering), Non-Profit Entity shall deliver to City, within five days after the effectiveness of the transfer or transaction, written Notice describing the transfer or transaction and (if applicable) the names of the transferor and transferee, together with documentation demonstrating that the transfer or transaction is within such an exception.

20.1.4 In the event the Internal Revenue Service notifies Non-Profit Entity, that (a) the construction of the Project; or (b) the execution and delivery of this Agreement, places Non-Profit Parent's qualification as a 501(c)(3) tax-exempt entity in jeopardy, Non-Profit Entity, in consultation with the Principal Project Company and City, shall use commercially reasonable efforts to identify a Substituted Entity with the approval of the City. If Non-Profit Entity, in

consultation with Principal Project Company and City, is unable to identify a Substituted Entity within sixty (60) days, then Non-Profit Entity shall be entitled to (i) assign, convey and transfer all of the Non-Profit Entity Interest to a newly formed special purpose entity, formed at the direction and in the discretion of the Non-Profit Entity, and approved by City, and to have all of the obligations of the Non-Profit Entity under this Agreement assumed by such newly formed entity, and (ii) assign, convey and transfer all of the right, title and interest of Non-Profit Entity in and to this Agreement and the other Financing Documents to such newly formed entity, and to have all of the obligations of Non-Profit Entity under this Agreement and the Financing Documents assumed by such newly formed entity, so as to minimize any adverse tax consequences to Non-Profit Parent and to allow Non-Profit Parent to preserve its tax-exempt status as a 501(c)(3) organization; provided, however, that any such assignment, conveyance and transfer shall only be permitted to an entity that is taking assignment of, and assuming, the Non-Profit Entity's rights and obligations under this Agreement in accordance with the terms herein and under the Financing Documents in accordance with the terms thereof. Any costs of expenses incurred in connection with the identification of and assignment to the Substituted Entity including those of the City shall be paid by the Non-Profit Entity.

20.2 Standards and Procedures for City Approval

20.2.1 Where City's prior written approval is required for a proposed sale, assignment, conveyance, transfer, pledge, mortgage, encumbrance, grant of right of entry, or grant of other special use, management or control, or for any proposed Equity Transfer or Change of Control (each, a "**Transaction**"), and such Transaction is proposed at any time during the period ending two years after the Substantial Completion Date, City may withhold or condition its approval in its sole discretion. Any such decision of City to withhold consent shall be final, binding and not subject to the Contract Dispute Procedures.

20.2.2 After the second anniversary of the Substantial Completion Date, City shall not unreasonably withhold its approval of a Transaction.

20.2.3 Among other factors and considerations, it shall be reasonable for City to withhold its approval if:

(a) Non-Profit Entity fails to demonstrate to City's reasonable satisfaction that: (i) the proposed Transaction that would amount to a Change of Control of Non-Profit Entity or Principal Project Company will not have any adverse effect on (x) Non-Profit Entity's ability to timely perform its obligations under the Contract Documents and the Principal Project Documents and (y) Principal Project Company's ability to timely perform its obligations under the Project Implementation Agreement, taking into account the financial resources, qualifications and experience of the proposed assignee, grantee or transferee; and (ii) the proposed assignee, grantee or transferee is in compliance with City's rules, regulations, and adopted written policies regarding organizational conflicts of interest; or

(b) at the time of the proposed Transaction, there exists any uncured NPE Default or any event or circumstance that with the lapse of time, the giving of Notice or both would constitute a NPE Default, unless City receives from the proposed transferee assurances of cure and performance acceptable to City in its reasonable discretion.

20.2.4 For Transactions subject to City's prior reasonable approval, City will approve or disapprove in writing within 60 days after it receives from Non-Profit Entity:

(a) a request for approval;

(b) a reasonably detailed description of the proposed Transaction;

(c) such information, evidence, and supporting documentation as City may request concerning the identity, financial resources, qualifications, experience, and potential conflicts of interest of the proposed transferee and its proposed contractors; and

(d) such evidence of organization and authority, and such incumbency certificates, certificates regarding debarment or suspension, and other certificates, representations, and warranties as City may reasonably request.

20.2.5 For Transactions subject to City's prior reasonable approval, City will evaluate the identity, financial resources, qualifications, experience, and potential conflicts of interest using the same standards and criteria that it is then currently applying, or if there is no current application, then the same standards and criteria it most recently applied, to the evaluation of Persons responding to City's requests for qualifications for similar agreements for comparable projects and facilities.

20.2.6 If for any reason City does not act within such 60 day period, or any extension thereof by mutual agreement of the Parties, then the proposed Transaction shall not be permitted, subject to Non-Profit Entity's right, in the case of a proposed Transaction governed by Section 20.2.2, to submit a Contract Dispute for resolution according to the Contract Dispute Procedures.

20.3 Restrictions on Assignment, Subletting and Other Transfers of NPE's Interest or the Project

20.3.1 Non-Profit Entity shall not voluntarily or involuntarily sell, assign, convey, transfer, pledge, mortgage or otherwise encumber NPE's Interest or any portion thereof without City's prior written approval, in its sole discretion, except:

(a) to Lenders for security as permitted by this Agreement, provided Non-Profit Entity retains responsibility for the performance of Non-Profit Entity's obligations under the Contract Documents; or

(b) to any Substituted Entity approved by City in accordance with the Direct Agreement, provided that such Substituted Entity assumes in writing full responsibility for performance of the obligations of Non-Profit Entity under this Agreement, the other Contract Documents, the Project Implementation Agreement and the other Key Contracts and Financing Documents arising from and after the date of assignment.

20.3.2 Subject to Section 20.3.1, assignments and transfers of the NPE's Interest permitted under this Section 20.3 (Restrictions on Assignment, Subletting and Other Transfers of NPE's Interest or the Project), or otherwise approved in writing by City, shall be effective only upon City's receipt of a written instrument executed by the transferee of NPE's Interest, including any

Person who acquires NPE's Interest through foreclosure, transfer in lieu of foreclosure or similar proceeding, in form and substance acceptable to City, in which the transferee, without condition or reservation, (i) assumes all of NPE's Interest then in effect, (ii) agrees to perform and observe all of NPE's Interest, and (iii) agrees to be bound by, the Project Management Plan, the Project Implementation Agreement, the other Key Contracts, the Regulatory Approvals, all agreements between the transferor and Third Parties related to or arising out of the Work and/or the Project, and all agreements between the transferor and Governmental Entities with jurisdiction over the Project or the Work, except to the extent otherwise approved by City, in its sole discretion.

20.3.3 Non-Profit Entity shall not grant any right of entry onto, use of, or right to manage and control the Project to any other Person except as expressly contemplated in this Agreement without City's prior written approval, in its sole discretion. Any purported voluntary or involuntary sale, assignment, subletting, conveyance, transfer, pledge, mortgage, encumbrance or grant of other special use, management or control of the Project in violation of this provision shall be null and void ab initio and City, at its option, may declare any such attempted action to be a material NPE Default.

20.4 Assignment by City

City may assign all or any portion of its right, title and interest in the Contract Documents, Payment Bonds and Performance Bonds, guarantees, letters of credit and other security for payment or performance:

(a) in its sole discretion and without Non-Profit Entity's consent, to any other Person that succeeds to the powers and authority of SFMTA under the San Francisco City Charter and San Francisco Administrative Code, has the legal authority to perform its obligations and has sources of funds to perform the payment obligations of the City that are at least as adequate and secure as the City's as of the time of the assignment; and

(b) to others with the prior written consent of Non-Profit Entity, which consent cannot be unreasonably withheld if City's assignee has a credit rating equal to or better than City's senior lien rating at the time of the assignment as measured by a Rating Agency.

20.5 Change of Organization or Name

20.5.1 Non-Profit Entity shall not change the legal form of its organization in a manner that adversely affects City's rights, protections and remedies under the Contract Documents without the prior written approval of City.

20.5.2 If either Party changes its name, such Party agrees to promptly furnish the other Party with Notice of change of name and appropriate supporting documentation.

ARTICLE 21. RECORDS AND AUDITS; INTELLECTUAL PROPERTY

21.1 Maintenance and Inspection of Records

21.1.1 Non-Profit Entity shall undertake the following with respect to its Books and Records:

(a) keep and maintain Books and Records, including copies of all original documents delivered to City, in San Francisco, California, or in another location approved by City in writing, and provide Notice to City where the Books and Records are kept;

(b) keep and maintain Books and Records in accordance with applicable provisions of the Contract Documents, including the Technical Requirements, applicable provisions of the Project Management Plan, and in accordance with Good Industry Practice;

(c) make all Books and Records available for inspection by City and its representatives in Non-Profit Entity's principal offices in San Francisco, California, or in accordance with each IP Escrow, at all times during normal business hours, or at other reasonable times during the Term;

(d) provide to City, or make available to City for review in accordance with each IP Escrow, copies of any Books and Records as and when reasonably requested by City. City may inspect upon 48 hours' prior Notice or without prior Notice where there is good faith suspicion of fraud. City's right of inspection includes the right to make extracts and take notes and shall not be construed as a waiver by Non-Profit Entity of the attorney-client privilege;

(e) retain all Books and Records related to the D&C Work until five years after the expiration of the Warranty Period, provided that all records which are being audited or which relate to Claims and Contract Disputes being processed or actions brought under the Contract Dispute Procedures shall be retained and made available until any later date that such audits, Claims, Contract Disputes and actions are finally resolved; and

(f) permit City, upon 10 days' prior Notice to Non-Profit Entity (which Notice shall identify the persons City requests to be present for an interview and describe with reasonable specificity the subject matter to be raised in the interview), to discuss the obligations of Non-Profit Entity under this Agreement with any of the directors, chief executive officer and chief financial officer of Non-Profit Entity or its representatives, for the purpose of enabling City to determine whether Non-Profit Entity is in compliance with this Agreement and applicable Law. The interviewees and their employers may have counsel present at the interviews.

21.1.2 Non-Profit Entity shall cause the Project Implementation Agreement and each other Key Contract to include the provisions of Section 21.1.1, to the extent applicable, modified as appropriate to apply to the Contractor's Books and Records.

21.1.3 Exhibit 16 (Federal, State and City Requirements) includes additional requirements regarding maintenance and inspection of Books and Records.

21.2 Audits

21.2.1 City may review and audit Non-Profit Entity, its Contractors and their respective Books and Records as and when City deems necessary for purposes of verifying compliance with the Contract Documents and applicable Law and verifying Claims.

21.2.2 Without limiting Section 21.2.1:

(a) City may audit the Project Management Plan and compliance therewith, including the right to inspect Work and/or activities and to verify the accuracy and adequacy of the Project Management Plan and its component parts, plans and other documentation;

(b) the audits may be performed by employees or consultants of City, City or the City's Controller, or by an auditor under contract with City, City or the City's Controller;

(c) Non-Profit Entity shall provide adequate and appropriate work space for City or its representative(s) to conduct audits;

(d) Non-Profit Entity shall: allow auditor(s) access to such Books and Records during normal business hours; provide to City copies thereof, in any physical and/or digital medium, as and when reasonably requested by City; allow interviews of any employee who might have information related to such Books and Records; and otherwise cooperate with the auditors including furnishing a management representation letter upon request of the auditor; and

(e) Non-Profit Entity shall cause each Contract to include a similar right of City to audit records and interview staff of the Contractor, and a similar covenant to cooperate with the auditors.

The foregoing shall not be deemed to waive the right of Non-Profit Entity or Contractor to have counsel or other appropriate representatives present at the interview.

21.2.3 If any City audit results in a material correction to the Books and Records, as determined by City in its reasonable discretion, Non-Profit Entity shall pay the reasonable costs of City in conducting the audit, but if not, City will bear the costs of the audit.

21.2.4 Failure of Non-Profit Entity, Contractors or their agents to maintain and retain sufficient Books and Records to allow the auditors to verify all or a portion of a Claim or to permit the auditor access to its Books and Records to verify a Claim shall be sufficient basis for City to deny recovery by Non-Profit Entity of the Claim to the extent of such failure.

21.2.5 Full compliance by Non-Profit Entity with the provisions of Section 21.2 (Audits) is a contractual condition precedent to Non-Profit Entity's right to seek relief on a Claim.

21.2.6 City's rights of audit include the right to observe the business operations of Non-Profit Entity and its Contractors to confirm the accuracy of Books and Records.

21.2.7 Non-Profit Entity shall include in the Project Management Plan internal procedures to facilitate review and audit by City and, if applicable, City representatives and the City's Controller or their employees and consultants.

21.2.8 Non-Profit Entity represents and warrants the completeness and accuracy of all information it or its agents provides in connection with City audits, and shall cause all Contractors to represent and warrant the completeness and accuracy of all information such Contractors provide in connection with City audits.

21.2.9 Non-Profit Entity's internal and Third Party quality and compliance auditing responsibilities shall be identified in the Project Quality Plan, in accordance with Section 1.4 of Division 1 of the Technical Requirements and other related provisions concerning QA and compliance auditing.

21.2.10 Nothing in the Contract Documents shall in any way limit the constitutional and statutory powers, duties and rights of elected officials, including the independent rights of the City's Controller, in carrying out his or her legal authority.

21.3 Public Records Act and San Francisco Sunshine Ordinance

21.3.1 Non-Profit Entity acknowledges and agrees that all Submittals, records, documents, drawings, plans, specifications and other materials in City's possession, including any Books and Records submitted by Non-Profit Entity to City, may be considered public information subject to disclosure under the California Public Records Act (the "**PRA**") and San Francisco Sunshine Ordinance.

21.3.2 If Non-Profit Entity believes any Books and Records submitted to City constitute trade secrets, proprietary information or other information that is not subject to or excepted from disclosure under the PRA, Non-Profit Entity shall be solely responsible for specifically and conspicuously designating that information by placing "CONFIDENTIAL" in the center header of each such page affected, as it determines to be appropriate. Any such designation of trade secret or other basis for exemption shall be accompanied by a concise statement of reasons supporting the claim including the specific Law that authorizes the exemption from disclosure under the PRA.

21.3.3 If City receives a request for public disclosure of information or materials that have been designated by Non-Profit Entity as "CONFIDENTIAL," City will use reasonable efforts to provide Notice to Non-Profit Entity of the request and may request advice from City's counsel before disclosing any such documents in accordance with applicable Law. Non-Profit Entity shall then have the opportunity to either consent to the disclosure or assert its basis for non-disclosure and claimed exception under the PRA or other applicable Law to City within the time period specified in the Notice issued by City (if any) and before the deadlines for release in the PRA and other applicable Law. However, it is the responsibility of Non-Profit Entity to monitor requests for disclosure and proceedings and make timely filings. City may make filings of its own concerning possible disclosure; however, City is under no obligation to support Non-Profit Entity's positions. By entering into this Agreement, Non-Profit Entity consents to, and expressly waives any right to contest, provision by City to City's counsel of all, or representative samples of, information or materials designated as "CONFIDENTIAL" by Non-Profit Entity, in accordance with the PRA. City shall have no responsibility or obligation for a failure of Non-Profit Entity to respond or to respond timely to any request for disclosure of information or materials designated as "CONFIDENTIAL" by Non-Profit Entity, in accordance with the PRA, and City shall not be

required to wait for a response before making a disclosure or otherwise taking action under the PRA or other applicable Law. Under no circumstances will City be responsible or liable to Non-Profit Entity or any other party as a result of disclosing any such materials, including materials marked "CONFIDENTIAL", whether the disclosure is deemed required by Law or by an order of court or City's general counsel or occurs through inadvertence, mistake or negligence on the part of City or its officers, employees, contractors or consultants.

21.3.4 Nothing contained in this Section 21.3 (Public Records Act and San Francisco Sunshine Ordinance) shall modify or amend requirements and obligations imposed on City by the PRA or other applicable Law, and the provisions of the PRA or other Laws shall control to the extent of a conflict between the procedures under this Agreement and applicable Law. City will not advise a submitting party or Non-Profit Entity as to the nature or content of documents entitled to protection from disclosure under the PRA or other applicable Laws, as to the interpretation of such Laws, or as to definition of trade secret. Non-Profit Entity is advised to contact its own legal counsel concerning the effect of applicable Laws to Non-Profit Entity's Books and Records and actions to be taken to preserve confidentiality.

21.3.5 In the event of any proceeding or litigation concerning the disclosure of any Books and Records to Third Parties, City's sole involvement will be as a stakeholder retaining the material until otherwise ordered by a court or other authority having jurisdiction. Non-Profit Entity shall be responsible for prosecuting or defending any action, acting on its own behalf, concerning such materials at its sole expense and risk; provided, however, that City may intervene or participate in the litigation in such manner as it deems necessary or desirable. Non-Profit Entity shall indemnify and hold harmless Indemnitees from and against any and all claims, causes of action, suits, legal or administrative proceedings, damages, losses, liabilities, response costs, costs and expenses, including any injury to or death of persons or damage to or loss of property (including damage to utility facilities), and including attorneys' and expert witness fees and costs, arising out of, relating to or resulting from City's refusal to disclose any material that Non-Profit Entity has designated as a trade secret.

21.4 Intellectual Property

21.4.1 Developed IP

21.4.1.1 Non-Profit Entity acknowledges and agrees that all Developed IP, in any medium, is either owned by City or specially ordered or commissioned by City, including works made for hire pursuant to 17 U.S.C. § 101 (the U.S. Copyright Act of 1976), and shall be owned by City upon authorship, creation, development or invention. Non-Profit Entity hereby assigns to City all rights, title and interest in and to the Developed IP including any and all Software, Work Product and designs. If any Developed IP is not the proper subject matter or is determined not to be a work-made-for-hire pursuant to the U.S. Copyright Act, Non-Profit Entity hereby assigns, and shall cause all NPE-Related Entities to assign, to City all rights, title and interest in and to the Developed IP including any deliverable. Non-Profit Entity agrees to execute, and shall cause all NPE-Related Entities to execute, such further documents and to do such further acts as may be necessary to perfect, register, or enforce City's ownership of such rights, in whole or in part. If any NPE-Related Entity fails or refuses to execute any such documents, Non-Profit Entity, for itself and on behalf of any NPE-Related Entity, hereby appoints City as the necessary NPE-Related Entity's attorney-in-fact (this appointment is irrevocable and is coupled with an interest) to act on NPE-Related Entity's behalf and to execute such documents. Non-Profit Entity hereby forever waives and agrees never to assert, and shall cause any NPE-Related Entity to waive and never to assert, against City, its successors or licensees any and all "moral rights"

(including claims based on 17 U.S.C. §§ 101-810 (the Copyright Act of 1976, as modified), specifically including 17 U.S.C. § 106A(a) (the Visual Artists Rights Act of 1990, "**VARA**")) that such NPE-Related Entity may have in any Intellectual Property or deliverable even after expiration or termination of this Agreement.

21.4.1.2 All deliverables authored, created or developed under or for the purpose of this Agreement, the Work or the Project shall be owned by City immediately upon creation or generation, physically or digitally, and whether or not such deliverable and/or work product have been delivered to City under the terms of this Agreement.

21.4.1.3 Non-Profit Entity shall deliver to City all deliverables and/or other work product authored, created or developed under or for the purpose of this Agreement (i) at time(s)/dates(s) pursuant to this Agreement, or (ii) as soon as reasonably practicable after such creation or generation, but in no event later than the effective date of termination of this Agreement.

21.4.2 Non-Profit Entity IP

21.4.2.1 Non-Profit Entity hereby grants to City an irrevocable, perpetual, non-exclusive, transferable (solely to a permitted City's assignee), fully paid-up right and license to use, execute, perform, sublicense, exploit, manufacture, distribute, reproduce, adapt, display, and prepare derivative works ("**Base License Rights**") of Non-Profit Entity IP in connection with the Work or the Project. The rights granted herein shall survive the termination, expiration or cancellation of this Agreement or any rights related thereto.

21.4.2.2 Non-Profit Entity shall identify and disclose to City all Non-Profit Entity IP required by, incorporated in, or combined with the Work or the Project.

21.4.3 Third Party IP

21.4.3.1 Non-Profit Entity shall use commercially reasonable efforts to secure Base License Rights in the name of City to license Third Party IP in connection with the Project or Work, and shall pay any and all royalties and license fees required to be paid for any Intellectual Property required by, incorporated in, or combined with the Project IP.

21.4.3.2 Subject to Section 21.4.3.3, if the owner of Third Party IP refuses to grant Base License Rights pursuant to Section 21.4.3.1, Non-Profit Entity shall:

(a) obtain City's prior written approval, which shall not to be unreasonably withheld, of the terms and conditions of Third Party IP licenses;

(b) identify and disclose to City all Third Party IP required by, incorporated in, or combined with the Project IP; and

(c) obtain from each owner of the Third Party IP prior consent to have the relevant Third Party IP deposited into an IP Escrow in accordance with Section 21.5 (Intellectual Property Escrows), or, to the extent the owner of the relevant Third Party IP has not provided such consent, obtain City's prior written approval for a waiver of this requirement, not to be unreasonably withheld.

21.4.3.3 COTS. Only if the owner of Third Party IP refuses to grant Base License Rights pursuant to Section 21.4.3.1 and the subject Third Party IP is COTS, Non-Profit Entity shall secure license(s) in the name of City, based on commercially available terms for the COTS, including any standard end user license Contract. Non-Profit Entity shall provide (i) an outline of license deficiencies vs. Base License Rights and (ii) the identification of at least one (1) other COTS available for the same purpose, function or design. Non-Profit Entity shall identify and disclose to City all COTS required by, incorporated in, or combined with the Work and/or the Project.

21.4.4 City IP and City Data

21.4.4.1 City hereby grants to NPE-Related Entities a limited, non-exclusive license to use, exploit, manufacture, distribute, reproduce, adapt and display the Project IP, City IP, and City Data, and any deliverable and/or other work product incorporating such Intellectual Property, solely in connection with and limited to the Allowed Uses. All rights not specifically granted in this Section 21.4.4.1 are reserved to City. For the avoidance of doubt, no rights to City trademarks, whether or not the subject of a trademark state or US application or registration, ("City Marks") are granted to Non-Profit Entity and Non-Profit Entity may not incorporate, refer to, or otherwise use City Marks for any marketing, promotional or advertising purposes.

21.4.4.2 In addition to Non-Profit Entity's obligations and restrictions related to City Data in this Agreement, Non-Profit Entity acknowledges and agrees that all City Data, including the results or creation of any anonymization, de-identification, aggregation or other analysis of such City Data, whether physical or digital, is owned by City. Except as specifically provided in this Agreement, no NPE-Related Entity shall make use of City Data, including any anonymized, de-identified, or aggregated versions thereof, even if such use is for such NPE-Related Entity's internal use or analysis, whether or not commercial value is available or received, and/or such information or data is available in other, separate or cumulative sources.

21.4.4.3 Notwithstanding any other term or condition of this Agreement, the rights and permissions granted under this Section 21.4.4 (City IP and City Data) shall terminate (i) upon the effective date of termination of this Agreement or (ii) upon 24-hour written Notice by City to Non-Profit Entity, whichever is earlier.

21.4.4.4 Except as, and to the limited extent, required by applicable Laws, Non-Profit Entity shall keep and maintain, and shall cause all NPE-Related Entities to keep and maintain, all City IP and City Data strictly confidential. Before any release of any City IP or CTIP Data pursuant to applicable Laws, Non-Profit Entity must consult with City and the City Attorney's Office regarding such release and obtain consent to such release. Any release shall be limited to the minimum required to satisfy the applicable Law.

21.4.5 Delivery of IP Materials

Non-Profit Entity shall deliver to City all IP Materials related to Non-Profit Entity IP and Third Party IP, or deposit such IP Materials into IP Escrow(s) in accordance with Section 21.5 (Intellectual Property Escrows), as soon as reasonably practicable following incorporation of the relevant Intellectual Property into the Project or Work.

21.4.6 Payments Inclusive

Non-Profit Entity acknowledges and agrees that the payments provided for in Article 11 (Payments to Non-Profit Entity) include all royalties, fees, costs and expenses arising from or related to the Project IP, including any fees pursuant to Section 21.5 (Intellectual Property Escrows).

21.5 Intellectual Property Escrows

21.5.1 City and Non-Profit Entity acknowledge that Non-Profit Entity or other NPE-Related Entities may deliver IP Materials pursuant to Section 21.4.5 (Delivery of IP Materials) that include Software, Source Code and Documentation or other Intellectual Property and may not wish to deliver the applicable IP Materials directly to City as public disclosure could deprive such Person of commercial value. Non-Profit Entity further acknowledges that City nevertheless must be ensured access to such IP Materials at any time, and must be assured that the IP Materials are delivered to City pursuant to Section 21.4.5 (Delivery of IP Materials).

21.5.2 In lieu of delivering the IP Materials directly to City, Non-Profit Entity may elect to deposit the IP Materials with a neutral depository. In such event, City and Non-Profit Entity shall: (a) mutually select one or more escrow companies or other neutral depositories (each an "**IP Escrow Agent**") engaged in the business of receiving and maintaining escrows of software source code and/or other Intellectual Property; (b) establish one or more escrows (each an "**IP Escrow**") with the IP Escrow Agent on terms and conditions reasonably acceptable to City and Non-Profit Entity for the deposit, retention, upkeep, authentication, confirmation and release of IP Materials to City pursuant to this Agreement; (c) determine the date(s) for Non-Profit Entity's deposit of the IP Materials into the IP Escrow; and (d) determine a process for releasing from escrow the IP Materials to be delivered to City pursuant to this Agreement. IP Escrows also may include Affiliates as parties and may include deposit of their Intellectual Property. Non-Profit Entity shall be responsible for the fees and costs of the IP Escrow Agent(s).

21.5.3 The IP Escrows shall survive expiration or earlier termination of this Agreement regardless of the reason.

21.5.4 The IP Materials shall be released and delivered to City in any of the following circumstances:

(a) this Agreement expires or is terminated prior to expiration for any reason;

(b) voluntary or involuntary bankruptcy of Non-Profit Entity, NPE-Related Entity or the owner of Third Party IP, as to Non-Profit Entity IP or Third Party IP respectively; or

(c) Non-Profit Entity, NPE-Related Entity or the owner of Third Party IP is dissolved or liquidated or otherwise ceases to engage in the ordinary course of the business of manufacturing, supplying, maintaining, and servicing the Software, product, part, or other item containing the relevant Intellectual Property.

21.6 City's Use of IP Materials

21.6.1 City may exercise all rights, including the Base License Rights, granted to City pursuant to Section 21.4 (Intellectual Property) for the purposes of the Project, including any subsequent expansion or additions, except that City's ownership or assigned rights pursuant to Section 21.4.1 (Developed IP) shall not be limited in any way, for any purpose. For the avoidance of doubt, City's rights include the right to sublicense any City rights to a future vendor. City's rights under this clause shall survive the termination, expiration or cancellation of this Agreement.

21.6.2 City shall maintain the confidentiality of any IP Materials released pursuant to Section 21.5 (Intellectual Property Escrows) pursuant to Section 21.4 (Intellectual Property) and shall enter into a non-disclosure agreement with any third party to whom City, in its sole discretion, grants access to such IP Materials to the extent that such IP Materials contain Confidential Information.

ARTICLE 22. ADVERTISING AND OTHER BUSINESS OPPORTUNITIES

22.1 Rights and Interests in the Project and Project Site

Non-Profit Entity's rights and interests in the Project and Project Site under this Agreement are limited to such rights and interests that are required for performing the Work and Non-Profit Entity's timely fulfillment of its obligations under the Contract Documents. Non-Profit Entity's rights and interests exclude any Airspace or other real property interest.

22.2 Advertising and Business Opportunities

22.2.1 City reserves all rights and opportunities concerning:

(a) advertising on the Infrastructure Facility and, as between Non-Profit Entity and City, within the Project Site, including use of Infrastructure Facility physical assets for advertising purposes; and

(b) entrepreneurial, commercial and business activities that are ancillary or collateral to the use and operation of the Infrastructure Facility and Project Site, whether developed or pursued by City or through others worldwide. The rights and opportunities reserved to City under this Section 22.2.1(b) include the rights described in Section 22.2.1(a) and any sponsorships, naming rights, etc. (collectively, "**Business Opportunities**").

22.2.2 Non-Profit Entity shall cooperate and, during the D&C Period, grant all necessary access to the Project Site to City and any Third Party designees, including tenants and vendors, authorized by City in connection with City's exercise of its rights relating to the Project Site and any advertising and Business Opportunities. After the D&C Period, in the performance of any Warranty Work, Non-Profit Entity shall not interfere with access to the Infrastructure Facility by City and any Third Party designees, including tenants and vendors, authorized by City in connection with City's exercise of its rights relating to its operations at the Project Site and any advertising and Business Opportunities. Unless otherwise agreed to by the Parties, City shall be entitled to all revenues generated by business opportunities arising out of, relating to or resulting from the Infrastructure Facility or in the Project Site's Airspace, except rents paid by any Housing and Commercial Component tenants. To the extent requested to be performed by City prior to the Final Acceptance Date, Non-Profit Entity shall install, and be compensated for reasonable costs and expenses incurred directly by Non-Profit Entity for installing, facilities for advertising or Business Opportunities through a Change Order.

22.2.3 Except as authorized by City, Non-Profit Entity shall not engage in, and shall not permit:

(a) any advertising within the Project Site or within or on the exterior of the Infrastructure Facility;

(b) use or occupation of the Project for any Business Opportunities; and

(c) operation of any business at the Project Site or the Infrastructure Facility, including (i) the sale of products or services (including any newsstand or concession stand for the sale of food, beverages or gifts or other retail or

rental services); or (ii) the sale or rental of any wire, cable, transmission or receiving device or any other utility on, or transmission or receipt of any electronic communication to or from, any part of the Project.

22.2.4 Non-Profit Entity may request City to consider Business Opportunities. If City, in its sole discretion, consents, the Parties shall execute an amendment to the Contract Documents memorializing the agreement reached, including any agreement as to any revenue and cost attribution. Notwithstanding the foregoing, Non-Profit Entity shall be compensated pursuant to a City Change for Non-Profit Entity's reasonable costs and expenses that are directly attributable to implementation of such Business Opportunities as well as any support efforts the City Change requires Non-Profit Entity to provide.

22.2.5 Unless expressly approved by City, Non-Profit Entity may not permit any Person to use or occupy the Project for any ancillary or collateral purpose.

22.3 Remedies

If a NPE Default concerns a breach of the provisions of Section 22.2 (Advertising and Business Opportunities), then, in addition to any other remedies available to City under this Agreement or applicable Law, City shall be entitled to receive from Non-Profit Entity an amount equal to all profits from the prohibited activity, together with interest thereon at the Late Payment Rate from the date of collection until the date payment is made. In addition, City may require Non-Profit Entity to restore the Project Site and the Infrastructure Facility to its original condition or to transfer to City all of Non-Profit Entity's interest in the prohibited assets and improvements and revenues derived therefrom, or any combination of the foregoing.

ARTICLE 23. MISCELLANEOUS

23.1 Standard for Approvals

In all cases where approvals, acceptances or consents are required to be provided by City or Non-Profit Entity hereunder, such approvals, acceptances or consents shall not be withheld unreasonably except in cases where a different standard (such as sole discretion) is specified. Any authorization by City shall be in writing. Any approval required by the SFMTA Board or Board of Supervisors will be at their respective sole discretion. In cases where sole discretion is specified, the decision shall not be subject to Contract Dispute Procedures hereunder.

23.2 Amendments

The Contract Documents may be amended only by a written instrument duly executed by or on behalf of the Parties, except to the extent expressly provided otherwise in this Agreement.

23.3 Waiver

23.3.1 The failure of a Party to exercise or delay in exercising any right under this Agreement shall not:

(a) constitute a waiver of such right or any other right under the Contract Documents; or

(b) relieve the other Party from performance of its obligations under the Contract Documents except as otherwise provided in the Contract Documents.

23.3.2 No waiver of any right under this Agreement shall be effective unless made in a writing duly executed by a duly authorized representative of the Party charged with the waiver.

23.3.3 Any waiver under Section 23.3.2 shall be limited to the specific instance and shall not constitute a waiver of such right in the future or of any other right under this Agreement.

23.3.4 If the Parties make and implement any interpretation of the Contract Documents without documenting such interpretation by an instrument in writing signed by both Parties, such interpretation and implementation thereof will not be binding in the event of any future Contract Disputes.

23.3.5 No waiver of any right under this Agreement shall be deemed to have occurred as the result of any acceptance by City, any payment for or acceptance of the whole or any part of the Work, any extension of time, or any possession taken by City.

23.4 Independent Contractor; No Joint Venture or Partnership

23.4.1 Non-Profit Entity is an independent contractor. Neither Non-Profit Entity nor any of its employees or agents is or shall be deemed to be an employee or agent of City, and in no event shall the relationship between City and Non-Profit Entity be construed as creating any relationship whatsoever between City and Non-Profit Entity's employees or agents. Except as otherwise provided in the Contract Documents, Non-Profit Entity has sole authority and responsibility to employ, discharge and otherwise control its employees and has complete and

sole responsibility as a principal for its agents, for all Contractors and for all other Persons that Non-Profit Entity or any Contractor hires to perform or assist in performing the Work.

23.4.2 Nothing in the Contract Documents is intended or shall be construed to create any partnership, joint venture or similar relationship between City and Non-Profit Entity; and in no event shall either Party take a position in any tax return or other writing of any kind that a partnership, joint venture or similar relationship exists.

23.4.3 Non-Profit Entity shall not have, or be deemed to have, power or authority to make any commitments on City's behalf or to execute agreements in the name of or on behalf of City. Non-Profit Entity shall not enter into any agreement with any Governmental Entity, Utility Owner, property owner or other Third Party having regulatory jurisdiction over any aspect of the Project or Work or having any property interest affected by the Project or the Work that in any way purports to obligate City, or states or implies that City has an obligation to the Third Party, to undertake any activity, unless City otherwise approves.

23.5 Successors and Assigns

The Contract Documents shall be binding upon and inure to the benefit of City and Non-Profit Entity and each of their permitted successors, assigns and legal representatives.

23.6 Designation of Representatives; Cooperation with Representatives

23.6.1 City and Non-Profit Entity shall each designate an individual or individuals who shall be authorized to make decisions and bind the Parties on matters relating to the Contract Documents. Exhibit 10 (Initial Designation of Authorized Representatives) provides the initial Authorized Representative designations. A Party may change such designations by written Notice in accordance with Section 23.10 (Notices and Communications).

23.6.2 Non-Profit Entity shall cooperate with City and all representatives of City designated as described above in performance of their obligations under the Contract Documents.

23.7 Survival

The following provisions shall survive the expiration or earlier termination of this Agreement and/or the completion of the Work:

(a) Non-Profit Entity's and City's representations and warranties;

(b) the Contract Dispute Procedures;

(c) the indemnifications, limitations and releases contained in Section 10.6 (Indemnities);

(d) the limitations on remedies contained in Section 16.6 (Limitation on Consequential Damages);

(e) the express obligations of the Parties following termination (including those in Articles 17 (Termination) and 20 (Assignment and Transfer);

(f) the Direct Agreement); and

(g) all other provisions which by their inherent character should survive expiration or earlier termination of this Agreement and/or completion of the Work.

23.8 Limitation on Third Party Beneficiaries

Except to the extent that specific provisions (such as the warranty and indemnity provisions, and the provisions for the protection of certain Lenders under any Direct Agreement) identify Third Parties and state that they are entitled to benefits, (a) it is not intended by any of the provisions of the Contract Documents to create any third party beneficiary to this Agreement or to authorize anyone not a Party to maintain a suit for personal injury or property damage under this Agreement, and (b) the duties, obligations and responsibilities of the Parties with respect to third parties shall remain as imposed by Law. The Contract Documents shall not be construed to create a contractual relationship of any kind between City and a Contractor or any Person other than Non-Profit Entity.

23.9 Governing Law; Venue

The Contract Documents shall be governed by and construed in accordance with the laws of the State, any applicable federal law, the San Francisco City Charter and Municipal Code, and the ordinances, regulations, codes, and Executive Orders enacted and/or promulgated pursuant thereto. The venue for any litigation arising from a Contract Dispute shall be in San Francisco, California to the extent that a court located in San Francisco has subject matter jurisdiction.

23.10 Notices and Communications

23.10.1 All notices, requests, demands, instructions, certificates, consents, explanations, agreements, approvals and other communications (each being a "**Notice**") required or permitted under this Agreement must be in writing (whether or not "written notice" or "notice in writing" is specifically required by the applicable provision of this Agreement) and (a) delivered in person, (b) sent by commercial courier, next business day delivery requested, or (c) by registered, certified mail or express mail, return receipt requested, with postage prepaid, to the mailing addresses below. All Notices under this Agreement will be deemed given, received, made or communicated on the date personal receipt actually occurs or, if mailed, on the delivery date or attempted delivery date shown on the return receipt. For the convenience of the Parties, copies of Notices may also be given by email to the email address given below but the emailed copy will not be binding on either Party.

23.10.2 The effective time of a Notice will not be affected by the receipt of the email copy of the Notice.

23.10.3 Any mailing address, or email address, may be changed at any time by giving written Notice of the change in the manner provided above at least ten (10) days before the effective date of the change.

(a) All Notices to Non-Profit Entity shall be delivered to the following address or as otherwise directed by Non-Profit Entity's Authorized Representative:

PRG – Potrero Properties LLC
c/o Provident Resources Group Inc.
5565 Bankers Avenue
Baton Rouge, LA 70808
Attention: President and Chief Executive Officer
Telephone: 225-766-3977
E-mail: _____

(b) All Notices to City shall be marked as regarding the Project and shall be delivered to the following address or as otherwise directed by City's Authorized Representative:

San Francisco Municipal Transportation Agency
1 South Van Ness, 8th Floor
San Francisco, CA 94103
Attn: Chris Lazaro
Email: Chris.Lazaro@sfmta.com

With a copy to: Office of the City Attorney
City Hall, Room 234
1 Dr. Carlton B. Goodlett Place
San Francisco, California 94102-4682
Attn: Real Estate & Finance Group
Re: Potrero Yard Modernization Project
Email: isidro.jimenez@sfcityatty.org

23.10.4 Non-Profit Entity has provided an email address for Notices and other communications as set forth in Section 23.10.3 and represents and warrants that both Non-Profit Entity and Principal Project Company has full, concurrent and complete access to all Notices and communications sent to such email address. Notices and communications sent by City to such email address shall be considered to be immediately delivered to both Non-Profit Entity and Principal Project Company for all purposes under the Contract Documents and Project Implementation Agreement.

23.10.5 Any technical or other communications pertaining to the Work shall be conducted by Non-Profit Entity's Authorized Representative and City's Authorized Representative.

23.10.6 Non-Profit Entity shall promptly provide to City a copy of each communication received from any Lender relating to any default or event of default under any Financing Agreement or Security Document.

23.11 Severability

23.11.1 If any provision or part of the Contract Documents is ruled invalid (including invalidity due to any statutory change or other change in Law) by a court having proper jurisdiction, then the Parties shall: (a) promptly meet and negotiate a substitute for such provision or part, which shall, to the greatest extent legally permissible, effect the original intent of the Parties, including

an equitable adjustment to the Financial Model Update (or, if there has been no Update, the original Financial Model) and Non-Profit Entity's compensation to account for any change in the Work resulting from such invalidated portion; and (b) if necessary or desirable, apply to the court or other decision maker (as applicable) which declared such invalidity for an interpretation of the invalidated portion to guide the negotiations. The invalidity or unenforceability of any such provision or part shall not affect the validity or enforceability of the balance of the Contract Documents, which shall be construed and enforced as if the Contract Documents did not contain such invalid or unenforceable provision or part.

23.11.2 If after the efforts required by Section 23.11.1, no interpretation or reformation of the Contract Documents can reasonably be adopted that will return the Parties to the benefits of their original bargain, then the court order shall be treated as a Termination Due to Court Ruling under Section 17.4.3 (Termination Due to Court Ruling).

23.12 Construction and Interpretation of Agreement

23.12.1 The Contract Documents shall be construed simply, as a whole and in accordance with the fair meaning of the language used and not strictly for or against any Party.

23.12.2 The Parties acknowledge and agree that: (a) the Contract Documents are the product of an extensive and thorough, arm's-length exchange of ideas, questions, answers, information and drafts during the Implementation Proposal preparation process; (b) each Party has been given the opportunity to independently review the Contract Documents with legal counsel; and (c) each Party has the requisite experience and sophistication to negotiate, understand, interpret and agree to the particular language of the provisions of the Contract Documents. Accordingly, in the event of a conflict, ambiguity or inconsistency in or Contract Dispute regarding the interpretation of the Contract Documents, the Contract Documents shall not be interpreted or construed against the Party preparing it, and instead the Contract Dispute resolver shall consult other customary rules of interpretation and construction.

23.12.3 City's final answers to the questions posed during the Implementation Proposal preparation process for the Contract Documents shall in no event be deemed part of the Contract Documents and shall not be relevant in interpreting the Contract Documents except as they may clarify provisions otherwise considered ambiguous.

23.12.4 The captions of the articles, sections and subsections in the Contract Documents are for convenience only and are not to be treated or construed as part of this Agreement.

23.12.5 Unless otherwise expressly stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meaning.

23.12.6 Wherever the word "including", "includes" or "include" is used in the Contract Documents, it is deemed to be followed by the words "without limitation." Wherever reference is made in the Contract Documents to a particular Governmental Entity, it includes any public agency succeeding to the powers and authority of such Governmental Entity.

23.12.7 References to "days" contained in the Contract Documents shall mean calendar days unless otherwise stated.

23.12.8 Subject to Section 23.12.9, if the day on or by which any thing is to be done in accordance with this Agreement is not a Business Day, that thing must be done on the next Business Day.

23.12.9 If the Contract Documents require action to be taken in the event of an emergency and otherwise where it is clear that performance is intended to occur on a non-Business Day, Non-Profit Entity shall be required to perform such obligations, even though the date in question may fall on a non-Business Day.

23.12.10 As used in this Agreement and as the context may require, the singular includes the plural and vice versa, and the masculine gender includes the feminine and vice versa.

23.12.11 All monetary amounts and obligations in the Contract Documents are expressed and payable in U.S. dollars.

23.12.12 Each party must perform its obligations in accordance with this Agreement at its own cost, unless expressly provided otherwise.

23.12.13 If this Agreement requires calculation of an amount payable to a party there must be no double counting in calculating that amount.

23.13 Further Assurances

Each Party shall promptly execute and deliver to the other Party all such instruments and other documents and assurances as are reasonably requested by the second Party to further evidence its obligations hereunder, including, specifically with respect to Non-Profit Entity, assurances regarding the validity of (a) the assignments of Contracts contained herein, and (b) any instruments securing performance hereof.

23.14 Entire Agreement

City and Non-Profit Entity agree and expressly intend for the Contract Documents to constitute a single, non-severable, integrated agreement whose terms are interdependent and non-divisible. The Contract Documents contain the entire understanding of the Parties with respect to the subject matter of this Agreement and supersede all prior agreements, understandings, statements, representations and negotiations, in each case oral or written, between the Parties with respect to the subject matter of this Agreement.

23.15 Counterparts

This instrument may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

23.16 City Tax Covenants

23.16.1 General. The covenants of City set forth in this Section 23.16 shall survive payment in full or defeasance of the Tax-Exempt Bonds. Notwithstanding any provisions of this Section 23.16, if City shall provide to the Non-Profit Entity and the Principal Project Company an opinion of nationally recognized bond counsel to the effect that any specified action required under this Section 23.16 is no longer required or that some further or different action is required to maintain the exclusion from federal income tax of interest on the Tax-Exempt Bonds (an

"**Opinion of Counsel**"), the Non-Profit Entity and the Principal Project Company may conclusively rely on such opinion in complying with the requirements of this Section 23.16, and the covenants hereunder shall be deemed to be modified to that extent.

23.16.2 One Issue. Except as disclosed by City to the Non-Profit Entity and the Principal Project Company on the Financial Close Date, City is not aware of any governmental obligations, other than the Tax-Exempt Bonds, that are expected to be paid from substantially the same source of funds as the Tax-Exempt Bonds and have been or are expected to be sold within 15 days before or after the date the Tax-Exempt Bonds are sold.

23.16.3 Ownership. City does not expect to sell or otherwise dispose of, and will not sell or otherwise dispose of, its interest in the Project, in whole or in part, except due to normal wear, tear, and obsolescence, before payment in full of the Tax-Exempt Bonds. City will notify the Non-Profit Entity and the Principal Project Company prior to the sale of the Tax-Exempt Bonds if City's expectations with respect to sale or disposition of the Project change.

23.16.4 Not Private Activity Bonds. The amount of Private Use (defined below) that can be made of the Project is limited. Private Use is any use of any portion of the Project pursuant to a lease, Service Contract (defined below) or similar arrangement by an entity other than a state or local government.

(a) Except as provided in the Contract Documents, City does not expect to and shall not perform any act, enter into any agreement, or use or permit more than 3% of the Project to be used in any Private Use, unless the City provides prior Notice to the Non-Profit Entity and the Principal Project Company of the proposed act, agreement or use and City delivers to the Non-Profit Entity and the Principal Project Company an Opinion of Counsel with respect to such act, agreement or use.

(b) Except as provided in the Contract Documents, as noted above, and excluding this Agreement, if City has entered into or enters into any arrangement with any person or organization (other than a state or local governmental unit) which provides for such person or organization to manage, operate, or provide services with respect to any portion of the Project (a "**Service Contract**"), such Service Contract can give rise to Private Use. The guidelines set forth in Revenue Procedure 2017-13 (the "**Guidelines**") describe situations in which the Internal Revenue Service will rule that a Service Contract does not give rise to Private Use. Service Contracts that relate to the use or operation of the Project by "service providers," as that term is used in the Guidelines (the "**Service Providers**") and that do not satisfy the requirements Guidelines will constitute Private Use of the Project.

(c) Obligations the interest on which is excluded from gross income for federal income tax purposes under Section 103 of the Code ("**Tax-Exempt Bonds**") are expected to pay for only a portion of the total capital cost of the Project. City will contribute $315,000,000 of total milestone payments toward the capital cost of the Project, and $65,000,000 of such amount will not be proceeds of Tax-Exempt Bonds. The total amount of such City funds that are not proceeds of Tax-Exempt Bonds is referred to herein as "**Qualified Equity**." The Qualified Equity will be allocated to any Private Use of the

Project before proceeds of the Tax-Exempt Bonds are allocated to any Private Use of the Project, pursuant to Treasury Regulations Section 1.141-6.

23.16.5 Bona Fide Debt Service Funds. The payments made by City under this Agreement will be paid from revenues received by City during the then-current budgetary period, as opposed to City reserves.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

APPROVED AS TO FORM

David Chiu, City Attorney

By:_____

Isidro Jimenez
Deputy City Attorney

Date:_____

CITY AND COUNTY OF SAN FRANCISCO, a municipal corporation, operating by and through the San Francisco Municipal Transportation Agency

By:_____

Julie Kirschbaum
Director of Transportation

Date:_____

APPROVED BY:

San Francisco Municipal Transportation Agency
Board of Directors
Resolution No: _____
Adopted: _____
Attest:

_____
Secretary, SFMTA Board of Directors

PRG – POTRERO PROPERTIES LLC
a Delaware limited liability company

By: Provident Resources Group Inc.,
a Geogia non-profit corporation,
its sole member

By:_____

Chris Hicks
President and Chief Executive Officer

EXHIBIT 1
ABBREVIATIONS AND DEFINITIONS

EXHIBIT 1

ABBREVIATIONS AND DEFINITIONS

Unless otherwise specified, whenever the following abbreviations or terms are used in this Agreement and the other Contract Documents, they have the meanings given below. References in this Exhibit 1 (Abbreviations and Definitions) to Sections and Exhibits shall mean sections of and exhibits to this Agreement.

ACI	American Concrete Institute
ACM	Asbestos Containing Material
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
AED	Automatic Electronic Defibrillator
AHA	Activity Hazard Analysis
AHJ	Authority(ies) Having Jurisdiction
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
APTA	American Public Transportation Association
AQMD	Air Quality Management District
ARI	Air Conditioning and Refrigerator Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	ASTM International (formerly known as the American Society for Testing and Materials)
AW	Assigned Weight
AWS	American Welding Society
BCI	Buildings Cost Index
BEB	Battery Electric Bus
BAS	Building Automation System
BIL	Basic Insulation Level
BIM	Building Information Modeling
BOCC	Building Operations Control Center
BTU	British Thermal Unit
CADD	Computer Aided Design and Drafting
CALM	Coordination and Logistics Management Program
CAP	Compliance Action Plan
CARPP	Capital Asset Replacement Program Plan
CBC	California Building Code
CCTV	Closed-Circuit Television
CDRL	Contract Data Requirements List
CEC	California Electrical Code
CEI	Construction Engineering and Inspection
CEL	Certifiable Elements List
CEQA	California Environmental Quality Act, California Public Resources Code § 21000 et seq., as it may be amended
CFA	Certificate of Final Acceptance
CFR	Code of Federal Regulations
CIB	Communications Infrastructure Backbone
CIDH	Cast In Drilled Hole
CIH	Central Instrument House

CIL	Certifiable Items List
CIR	Committed Information Rate
CIS	Customer Information System
CL	Checklist
CM	Construction Management
CO	Carbon Monoxide
CPESEC	Customer Premises Equipment
CPI	Consumer Price Index
CPM	Critical Path Method
CPT	Cone Penetrometer Test
CPTED	Crime Prevention through Environmental Design
CPU	Central Processing Unit
CPUC	California Public Utilities Commission
CQCM	Construction Quality Control Manager
CS	Construction/Installation Supervisor
CSEMS	Construction Site Environmental Management Supervisor
CSP	Construction Security Plan
CWA	Clean Water Act
D&C	Design and Construction
D/CID	Design Construction Integration Documents
DC	Direct Current
DTS	Data Transmission System
DVD	Digital Video Disc
DVMS	Digital Video Management System
EA	Environmental Assessment
ECI	Environmental Compliance Inspector
ECP	Environmental Compliance Plan
EEO	Equal Employment Opportunity
EIA	Electronic Industries Association
EMP	Emergency Management Panel
EMS	Emergency Medical Services
EP	Extraction Procedure (toxicity)
EPA	Environmental Protection Agency
EPS	Electrical Power System
ER	Equipment Room
ERRS	Electricity Rate Risk Share
ESC	Erosion and Sediment Control
ESD	Environmental Site Design
ET	Environmental Team
ETEL	Emergency Telephone
EVP	Emergency Vehicle Preemption
FA	Forced Air
FAS	Fire Alarm System
FC	Footcandle
FDC	Fire Department Connections
FEIR	Final Environmental Impact Report
FF&E	Furniture, Fixtures and Equipment
FMP	Fire Management Panel
FMS	Fire Management System
FOD	Foreign Object Debris
FONSI	Finding of No Significant Impact
FOV	Field of View
FTA	Federal Transit Administration

GDR	Geotechnical Data Report
GER	Geotechnical Engineering Reports
GIS	Geographical Information System
GPM	Gallons per Minute
GPR	Geotechnical Planning Report
GRS	Galvanized Rigid Steel
GSD	General System Display
HCF	Hundred Cubic Feet
HVAC	Heating, Ventilation, and Air Conditioning
ICEA	Insulated Cable Engineers Association
ID	Identifier
IDF	Intermediate Distribution Frame
IDO	Interdepartmental Order
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineer Society of North America (also known as IES)
IF	Infrastructure Facility
IMP	Incident Management Plan
IPMVP	International Performance Measurement and Verification Protocol
IAQ	Indoor Air Quality
ISO	International Organization for Standardization
LAN	Local Area Network
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LEED	Leadership in Energy & Environmental Design
LEED NC	LEED New Construction
LFMC	Liquidtight Flexible Metallic Conduit
LiDAR	Light Detecting and Ranging
LOE	Level of Effort
LRFD	Load and Resistance Factor Design
LRU	Lowest Replaceable Unit
LTA	Lenders' Technical Advisor
MAC	Media Access Control
MDE	Maximum Design Earthquake
MDF	Main Distribution Frame
MEP	Mechanical, Electrical and Plumbing
MMIS	Maintenance Management Information System
MMRP	Mitigation Monitoring and Reporting Program
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MPH	Miles Per Hour
MSD	Major Service Degradation
MSDS	Material Safety Data Sheets
MSI	Master Systems Integrator
MTBHE	Mean Time Between Hazard Events
MUTCD	Manual on Uniform Traffic Control Devices
MW	Megawatt
NACE	National Association of Corrosion Engineers
NCE	Noncompliance Event
NCEER	National Center for Earthquake Engineering Research
NCHRP	National Cooperative Highway Research Program
NCR	Non-Conformance Report
NEC	National Electrical Code

NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 et seq., as it may be amended
NESC	National Electrical Safety Code
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPE	Non-Profit Entity
NPECQP	Non-Profit Entity's Construction Quality Plan
NPEDQP	Non-Profit Entity's Design Quality Plan
NPEQP	Non-Profit Entity's Quality Program
NPEECP	Non-Profit Entity's Environmental Compliance Plan
NPEQPP	Non-Profit Entity's Quality Program Plan
NPESE	Non-Profit Entity's Safety Engineer
NPESHP	Non-Profit Entity Safety & Health Plan
NPESS	Non-Profit Entity's Safety Supervisor
NPESSSP	Non-Profit Entity Site Specific Safety Plan
NRC	Noise Reduction Coefficient
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSC	National Safety Council
NVR	Network Video Recorder
OA	Other Adjustments
O&SHA	Operating and Support Hazards Analysis
O/S-SSPP	Operating System Safety Program Plan
OCC	Operations Control Center
OCR	Optical Character Recognition
OCS	Overhead Catenary System
ODE	Operating Design Earthquake
OEM	Original Equipment Manufacturer
OH	Overhead
OSHA	Occupational Safety and Health Administration
PA	Public Address
PAB	Private Activity Bond
PABX	Private Automatic Branch Exchange
PCB	Polychlorinated Biphenyl
PCI	Precast/Prestressed Concrete Institute
PDF	Portable Document Format
PDM	Precedence Diagram Method
PDS	Power Distribution System
PHA	Preliminary Hazards Analysis
PICO	Post-Installation Checkout
PM	Project Management
PMP	Project Management Plan
PNC	Potrero Neighborhood Collective LLC
PoE	Power over Ethernet
POH	Point of Handoff
PQM	Program Quality Manager
PRA	California Public Records Act
P-S	P-S Suspension Loggings
PSTN	Public Switched Telephone Network

PTZ	Pan, Tilt, Zoom
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
QM	Quality Management
QMP	Quality Management Plan
QMS	Quality Management System
QoS	Quality of Service
QPM	Quality Program Manager
QSD	Qualified SWPPP Developer
QT	Qualification Test
RAMS	Reliability, Availability, Maintainability, and Safety/Security/Service
RDE	Restorable Design Earthquake
RFC	Request for Comments
RFCCD	Release for Conformed Construction Documents
RFCD	Release for Construction Documents
RFP	Request for Proposals
RGS	Rigid Galvanized Steel
RTLS	Real-Time Location System
SBE	Small Business Enterprise
SC	Safety Certification
SC Plan	Safety Certification Plan
SCADA	Supervisory Control and Data Acquisition
SCI	System Condition Index
SCS	Structured Cabling System
SCVM	System Compliance Verification Matrix
SCVR	Safety Certification Verification Report
SF	Square Feet
SF6	Sulfur Hexafluoride
SFMTA	San Francisco Municipal Transportation Agency
SHA	System Hazards Analysis
SHPO	State Historic Preservation Officer
SLP	Service Loss Percentage,
SMARTS	Stormwater Multi-Application and Report Tracking System
SNMP	Simple Network Management Protocol
SOP	Standard Operating Procedure
SOQ	Non-Profit Entity's Statement of Qualification
SPCCP	Spill Prevention Control and Countermeasures Plan
SPFMA	System Performance and Failure Management Analysis
SQAP	Software Quality Assurance Plan
SSEPP	System Security Emergency Preparedness Plan
SSHA	System Subsystem Hazards Analysis
SSI	Sensitive Security Information
SSO	State Safety Oversight
SSP	System Security Plan
SSPP	System Safety Program Plan
SSPWC	Standard Specifications for Public Works Construction
SSRC	Safety and Security Review Committee
SUE	Subsurface Utility Engineering
SUSMP/LID BMP	Standard Urban Stormwater Mitigation Plan/Low Impact Development Best Management Practices
SWP	Safe Work Plan
SWPPP	Storm Water Pollution Prevention Plan

SWRCB	State Water Resources Control Board
TIA	Time Impact Analysis
TMP	Transportation Management Plan
TR	Technical Requirements
TRB	Transportation Research Board
TRO	Temporary Restraining Order
TSC	Traffic Signal Coordination
TVC	Terminal Vertical Core
U.S.C.	United States Code
UL	Underwriters Laboratory
UPS	Uninterruptable Power Supply
USDOT	United States Department of Transportation, or its successor entity
USO	United Service Organizations Inc.
VAR	Volt-Amp Resistance
VLAN	Virtual Local Area Network
VMS	Variable Message Sign
VoIP	Voice over Internet Protocol
VRLA	Valve-Regulated, Lead Acid
VSS	Video Surveillance System
VT	Verification Test
WAN	Wide Area Network
WBS	Work Breakdown Structure

Access Date has the meaning set forth in Section 2.2 (Right of Entry).

Account Balances means all amounts standing to the credit of any bank account held by or on behalf of Non-Profit Entity (excluding the Allowance Accounts), or the value of any letter of credit issued in lieu of any bank account held or required to be held by or on behalf of Non-Profit Entity (excluding the Allowance Accounts), at the Early Termination Date.

Active Service Line(s) means a Service Line (other than those that have been de-energized, shut down and/or abandoned, including those Service Lines that are to be de-energized, shut down and/or abandoned as part of the D&C Work).

Actual Knowledge means (i) as to Non-Profit Entity, facts and information actually known to Non-Profit Entity or Non-Profit Entity's Authorized Representative (in each case, as applicable), after reasonable consultation with other personnel of each NPE-Related Entity that are involved with the performance of the Work or this Agreement, as applicable; and (ii) as to City, City's Authorized Representative, facts and information actually known to City's Authorized Representative.

Additional Property(ies) has the meaning set forth in Section 7.5.1.2.

Adverse Event means:

(a) an Affordability Event, with the understanding that an Affordability Event occurring before the Effective Date shall be deemed to occur the day after the Effective Date;

(b) either or both of the CEQA Approval or the NEPA Approval is invalidated for a reason other than NPE Fault;

(c) a temporary restraining order, injunction or other form of legal order by a court prohibiting City or Non-Profit Entity from performing any of their respective material obligations under this Agreement or materially delaying the critical path;

(d) the occurrence of exceptional circumstances in the financial markets in one or more of Europe, the United States of America, Japan/Asia Pacific and Canada that, in City's opinion determined in City's reasonable discretion, (i) results in material and substantial cessation of lending activity in national or relevant international capital or interbank markets and (ii) adversely affects access by Non-Profit Entity to such markets preventing Financial Close by the Scheduled Financial Close Date;

(e) any action, litigation or proceeding pending against City or affecting the Project, which, in each case, has a material likelihood of success and if determined adversely would have the effect of (i) preventing Financial Close; or (ii) prohibiting or materially impairing City from performing any of its material obligations under the Principal Project Documents;

(f) a downgrade to City's credit rating by a Rating Agency that has a material negative impact on the credit rating of any bond financing included in the Finance Plan when compared to the indicative investment grade rating(s) of such bonds included in the Finance Plan as of the Effective Date;

(g) the approval of this Agreement by the SFMTA Board or the Board of Supervisors is invalidated for any reason other than NPE Fault;

(h) failure of City to timely provide the deliverables set forth in Section 3.2.2 (City Deliverables);

(i) any event set forth in clauses (b), (e)-(f), (h), (l)-(m), (o), and (s)-(t) of the definition of Compensable Delay Event; or

(j) any event set forth in clauses (a)-(h) of the definition of "Force Majeure Event".

Adverse Event Notice has the meaning set forth in Section 3.4.2.

Adverse Weather means heavy rain, windstorm, flood, or any severe atmospheric condition that: (i) occurs at the Project Site during the D&C Period; and (ii) prevents Non-Profit Entity from proceeding with at least 75 percent of the scheduled labor, material, and equipment resources for at least five hours per Day on activities shown in the Critical Path on the Project Schedule).

Adverse Weather Event means Adverse Weather that exceeds the anticipated number of Days of Adverse Weather specified per year in Section 14.1.8 (Relief for Adverse Weather Event).

Affiliate means:

(a) solely in relation to Principal Project Company, any Equity Member;

(b) any Person which directly or indirectly through one or more intermediaries controls, or is controlled by, or is under common control with, Non-Profit Entity or, solely in relation to Principal Project Company, any Equity Member; and

(c) any Person owned in whole or in part by (i) Non-Profit Entity, (ii) solely in relation to Principal Project Company, any Equity Member or (iii) any Affiliate of Non-Profit Entity under clause (b) of this definition, whether the ownership interest is direct or indirect, beneficial or of record, provided that ownership of less than 10% of the equity interest in a Person shall not give rise to Affiliate status.

For purposes of this definition, the term "control" means the possession, directly or indirectly, of the power to cause the direction of the management of a Person, whether through voting rights or securities, by contract, family relationship or otherwise.

Affordability Event means the occurrence of a fluctuation in the Base Interest Rates and/or Baseline Credit Spreads during the Bank Debt Rate Protection Period or Bond Rate Protection Period that results, or in the good faith opinion of City is likely to result, in an increase to the APC of 10% or greater.

Agreement means the Project Agreement to which this Exhibit 1 (Abbreviations and Definitions) is attached, including all exhibits, appendices and attachments, as such agreement may be modified from time to time.

Airspace means any and all real property, including the surface of the ground, within the vertical column extending above and below the surface boundaries of the Project Site and not necessary or required for the Infrastructure Facility or developing, permitting, designing, financing, constructing, installing or equipping the Infrastructure Facility or Non-Profit Entity's timely fulfillment of its obligations under the Contract Documents. If the Project Site is a separate legal parcel with specific vertical limits, then the Airspace shall only mean the area within those vertical limits.

Allowance means the Undergrounding Existing PG&E Power Lines Allowance, New PG&E Service Allowance, Exterior OCS Work Allowance, Interior OCS Work Allowance, Office/Admin and Training Spaces FF&E Allowance, the City-Furnished IT/Comms Allowance and the Partnering Allowance, and **Allowances** means all of them as the context requires.

Applicable Law and Standards means applicable Law and all applicable Standards and Specifications.

AQI Event means unhealthy air quality (AQI exceeding 150) where, under applicable Law, Non-Profit Entity is required to shut down all D&C Work at the Project Site.

APC means the capital portion of the Availability Payment as set out in Exhibit 4B (Availability Payment Mechanism), as adjusted from time to time in accordance with this Agreement. The APC includes APC_{Base} and APC_{DC}.

API means the index-linked portion of the Availability Payment as set out in Exhibit 4B (Availability Payment Mechanism), as adjusted from time to time in accordance with this Agreement.

As-Built Documents means, collectively, the documents referred to in Section 1.6.4 of Division 1 of the Technical Requirements, as well as the following items referred to in Division 1 of the Technical Requirements: As-Built Schedule, As-Built Drawings, and LOD 500 As-Built Model (Section 1.10.1.2).

As-Built Drawings means, revised sets of drawings submitted to reflect any changes made during the construction process, depicting the actual conditions, dimensions, and locations of installed elements as opposed to the originally planned design.

As-Built Schedule means has the meaning set forth in Section 1.2.5 of Division 1 of the technical Requirements.

As-Built Schedule Analysis has the meaning set forth in Section 18.3.5 (Additional Requirements for Contract Disputes Relating to Delay Events Impacting the Critical Path).

Authority(ies) Having Jurisdiction means an organization, including City acting in its regulatory capacity, office or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. The term "Authorities Having Jurisdiction" refers to more than one such organization, office or individual.

Authorized Representative means the authorized representative for either Party identified in Exhibit 10 (Initial Designation of Authorized Representatives) or otherwise designated in accordance with this Agreement.

Availability Payment means the payments to be made by City to Non-Profit Entity under Section 11.2 (Availability Payments), determined on an annual basis in accordance with Exhibit 4B (Availability Payment Mechanism) and payable quarterly.

Bank Debt means any debt financing, other than Bond Financing, provided by a bank or similar financial institution.

Bank Debt Pricing Date means with respect to any Bank Debt proposed in the Finance Plan, the earliest to occur of:

(a) the date of Financial Close;

(b) the date at which the Bank Debt is fixed or hedged by Non-Profit Entity; and

(c) such other date as is mutually agreed to by Non-Profit Entity and City.

Bank Debt Rate Protection Period means the period beginning at 3:00 p.m. Pacific Time on December 11, 2025 and ending on, with respect to any Bank Debt, the Bank Debt Pricing Date.

Bankruptcy Event means any of the following events:

(a) a receiver, receiver manager or other encumbrance holder taking possession of or being appointed over, or any distress, execution or other process being levied or enforced upon, the whole or any material part of the assets of an entity;

(b) any proceedings with respect to the entity being commenced under the Bankruptcy Law and if such proceedings are commenced against and are disputed by the entity, such proceedings are not discontinued, withdrawn, dismissed or otherwise remedied within 60 days of such proceedings being instituted;

(c) the entity making an assignment for the benefit of its creditors, being declared bankrupt or committing an act of bankruptcy, becoming insolvent, making a proposal or

otherwise taking advantage of provisions for relief under the Bankruptcy Law or similar legislation in any jurisdiction, or any other type of insolvency proceedings being commenced by or against the entity under the Bankruptcy Law or otherwise and, if proceedings are commenced against the entity and are disputed by the entity, such proceedings are not stayed, dismissed or otherwise remedied within 60 days of such proceedings being instituted;

(d) in any voluntary or involuntary case seeking liquidation, reorganization or other relief with respect to the entity or its debts under any bankruptcy Law or foreign bankruptcy, insolvency or other similar law now or hereafter in effect, this Agreement or any of the other Contract Documents is rejected, including a rejection under 11 U.S.C. § 365 or any successor statute; or

(e) the entity ceasing to carry on business.

Bankruptcy Law means the United States Bankruptcy Code, 11 U.S.C. §§ 101 *et seq.* as amended from time to time and any successor statute thereto. "Bankruptcy Law" also includes any similar state law relating to bankruptcy, insolvency, the rights and remedies of creditors, the appointment of receivers or the liquidation of companies and estates that are unable to pay their debts when due.

Base Case Financial Model means the Financial Model as approved by the Parties as of the Effective Date.

Base Interest Rate means the following:

(a) Municipal Market Data yield curve.

(b) Interest earnings rate(s) on deposits during the D&C Period; and

(c) set of applicable base rates included in Non-Profit Entity's Implementation Proposal.

The Base Interest Rates do not include any additional credit spread, margin or fee components.

Baseline Credit Spreads means the set of credit spreads included in Non-Profit Entity's Implementation Proposal.

Best Management Practices (BMP) has the meaning set forth in Storm Water Management For Construction Activities: Developing Pollution Prevention Plans and Best Management Practices (EPA Document 832 R 92-005).

BIM Project Execution Plan means Non-Profit Entity's plan describing BIM-enabled workflows and systems to successfully deliver, design and construct the Project, prepared and submitted by Non-Profit Entity in accordance with Section 1.10.2 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Board of Supervisors means the Board of Supervisors of the City and County of San Francisco.

Bond Financing means any debt financing comprising of bonds, which includes tax-exempt bonds issued by a Conduit Issuer or taxable capital market instruments.

Bond Pricing Date means with respect to any Bond Financing proposed in the Finance Plan, the earliest to occur of (a) the date of Financial Close, (b) the date at which any Bond Financing is priced, and (c) the date at which any Bond Financing is fixed or hedged.

Bond Rate Protection Period means the period beginning at 3:00 p.m. Pacific Time on December 11, 2025 and ending on, with respect to any Bond Financing, the Bond Pricing Date.

Books and Records means any and all documents, books, records, papers, or other information of any NPE-Related Entity or Affiliate relating to the Project, the Work, the NPE-Furnished FF&E and the Project Site, including (a) all design and construction documents (including drawings, specifications, Submittals, Contracts, invoices, schedules, meeting minutes, budgets, forecasts, requests for change proposals, change responses, change requests, plans (including the Project Management Plan), reports and manuals), (b) daily time sheets and supervisor's daily reports, union agreements, insurance, welfare and benefits records, payroll registers, earning records, payroll tax forms, invoices and requisitions, equipment records, payment certificates, cancelled checks, job cost reports, job payroll ledges, general ledger, cash disbursement journal; (c) income statements, balance sheets, statements of cash flow and changes in financial position, details regarding expenses and capital expenditures; (d) all budgets, certificates, claims, correspondence, data (including test data), documents, expert analyses, facts, files, information, investigations, materials, notices, plans, projections, proposals, records, reports, requests, samples, schedules, settlements, statements, studies, surveys, tests, test results, vehicular traffic information analyzed, categorized, characterized, created, collected, generated, maintained, processed, produced, prepared, provided, recorded, stored or used by Non-Profit Entity or its Contractors or any of their representatives in connection with the Project, (e) the Base Case Financial Model, Financial Model, subsequent Financial Model Updates and Financial Modeling Data, (f) records of the expenditure and investment of the Milestone Payments including records identifying expenditures for D&C Work and debt service payments, and (g) with respect to all of the above, any information that is stored electronically or on computer-related media (in its original source and not converted to PDF or other format). For purposes of the requirements of the Contract Documents to maintain Books and Records, the term "Books and Records" includes documents or information that are subject to the attorney-client privilege, but for purposes of requirements of the Contract Documents to provide access to Books and Records, the term specifically excludes the disclosure by any Party of Books and Records that are protected by the attorney-client or other legal privilege based upon an opinion of counsel reasonably satisfactory to the other Party.

Breakage Costs means any commercially reasonable prepayment premiums or penalties (including documented SOFR breakage fees, customary and reasonable trustee, Collateral Agent and Lender fees but excluding any fees related to legal or other consulting costs), make-whole payments or other prepayment amounts, including costs of early termination of interest rate and inflation rate hedging, swap, collar or cap arrangements, payable by or on behalf of, or credited against payments owing to, Non-Profit Entity, under any Financing Agreement or Security Document or otherwise as a result of the payment (including pre-payment), redemption or acceleration of all or any portion of the principal amount of Project Debt prior to its scheduled payment date (less any breakage benefits), excluding, however, any such amounts included in the principal amount of any Refinancing.

Building Automation System or **BAS** means the computer-based control system installed in buildings that controls, monitors and integrates the buildings' systems, including HVAC, lighting,

security, fire alarm and elevator control. The BAS controls building environmental conditions including temperature, humidity, CO2, illumination, heating and cooling and air flow distribution.

Building Occupant(s) means City Personnel, City Parties, Visitors, NPE-Related Entities and third party members of the public lawfully present on or using the Infrastructure Facility including, or each of them as the context requires.

Buildings Cost Index (BCI) means the "Buildings Cost Index" in San Francisco, as published by Engineering News-Record. If the BCI is discontinued or substantially altered, a suitable replacement will be determined by the Parties in accordance with general market practice at the time.

Business Day means any weekday (i.e., Monday through Friday) except for those weekdays on which (a) City is officially closed for business or (b) banks are not required or authorized by Law to be open in the State.

Business Opportunity(ies) has the meaning set forth in Section 22.2.1(b).

CEQA Approval means the Final Environmental Impact Report for the Potrero Yard Modernization Project at 2500 Mariposa Street (Planning Department Case No. 2019-021884ENV), certified by the Planning Commission on January 11, 2024 and available at https://sfplanning.org/environmental-review-documents?title=Potrero+Yard+Modernization+Project.

CEQA Event means:

(a) any new or modified CEQA Approval necessitated solely by a City Change or a Delay Event;

(b) legal action being taken in respect of the CEQA Approval that results in a temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction that prohibits prosecution of, or by complying with such temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction results in prohibiting the prosecution of, a material portion of the Work;

(c) review or revocation or material change to, the CEQA Approval; or

(d) any review or revocation of, or change to, a CEQA Approval directly resulting from the circumstances specified in clauses (b) and (c),

except, in each case, to the extent resulting, in whole or in part, from Non-Profit Entity's design, Work or from any NPE Fault.

Certificate of Final Acceptance means the certificate issued by City as contemplated in Section 7.9 (Final Acceptance).

Certificate of Substantial Completion means the certificate issued by City as contemplated in Section 7.8 (Substantial Completion).

Change means any acceleration, addition, decrease, omission, deletion, removal or modification from or to the Work.

Change in Law means:

(a) any repeal (in whole or in part) of, or amendment or modification to, any applicable Law by, any Governmental Entity or any written change in interpretation or application of, any applicable Law, in each case, after the Setting Date; and

(b) the adoption or enactment of any new applicable Law by any Governmental Entity after the Setting Date,

which, in either case, is materially inconsistent with any existing applicable Law or any existing interpretation or application of, any such applicable Law previously in effect prior to the Setting Date; but excluding, (i) any repeal of, or amendment or modification to, a written change in interpretation or application of, and applicable Law, or any new applicable Law, in each case, that is pending, passed or adopted but not yet effective as of the Setting Date, (ii) any repeal of, or amendment or modification to, or written change in interpretation or application of, or the adoption or enactment of, state or federal tax laws of general application, and (iii) any repeal of, or amendment or modification to, or written change in interpretation or application of, or adoption or enactment of, state labor laws.

Change of Control means any Equity Transfer, transfer of an interest, direct or indirect, in a Person (including, solely in relation to Principal Project Company, an Equity Member), or other assignment, sale, financing, grant of security interest, hypothecation, conveyance, transfer of interest or transaction of any type or description, including by or through voting securities, asset transfer, contract, merger, acquisition, succession, dissolution, liquidation, bankruptcy or otherwise, that results, directly or indirectly, in a change in possession of the power to direct or control or cause the direction or control of the management of Non-Profit Entity or Principal Project Company, as the case may be, or a material aspect of its business. A change in possession of the power to direct or control or cause the direction or control of the management of (y) Non-Profit Parent may constitute a Change of Control of Non-Profit Entity or (z) of an Equity Member may constitute a Change of Control of Principal Project Company if Non-Profit Parent or such Equity Member, as applicable, possesses, immediately prior to such Change of Control, the power to direct or control or cause the direction or control of the management of Non-Profit Entity or Principal Project Company, as applicable. Notwithstanding the foregoing, the following shall not constitute a Change of Control:

(a) a change in possession of the power to direct or control the management of Non-Profit Entity, an Equity Member or Principal Project Company, or a material aspect of its respective business, due solely to bona fide open market transactions in securities effected on a recognized public stock exchange, including such transactions involving an initial public offering;

(b) an upstream reorganization or transfer of indirect interests in Non-Profit Entity, an Equity Member or Principal Project Company (including, for greater certainty, in connection with the issuance or redemption of interests pursuant to any employee ownership program) so long as no change occurs in the entity with ultimate power to direct or control or cause the direction or control of the management of Non-Profit Entity, such Equity Member or Principal Project

Company;

(c) a change in possession of the power to direct or control the management of Non-Profit Entity, an Equity Member or Principal Project Company, or a material aspect of its respective business, due solely to a bona fide transaction involving a beneficial interest in the ultimate parent organization of Non-Profit Entity or such Equity Member (but not if such person is the ultimate parent organization), provided, however, that this exception shall not apply if at the time of the transaction the transferee is suspended or debarred from bidding, proposing or contracting with the City or any federal or State department or agency, or is subject to a suspension or debarment proceeding;

(d) an Equity Transfer, where the transferor and the transferee are under the same ultimate parent organization ownership, management and control before and after the transfer;

(e) a transfer of interests (i) between managed funds that are under common ownership, management or control or (ii) solely in relation to Principal Project Company, by an Equity Member to a fund, investment vehicle or other entity managed by or under common control of such Equity Member, except, in each case, a change in the management or control of a fund, investment vehicle or other entity, as applicable, that manages or controls;

(f) the exercise of minority veto or voting rights (whether pursuant to applicable Law, by Non-Profit Entity's, an Equity Member's or Principal Project Company's organizational documents, or by related member or shareholder agreements or similar agreements) over major business decisions of Non-Profit Entity, an Equity Member or Principal Project Company, provided that if such minority veto or voting rights are exercised pursuant to shareholder or similar agreements, City received copies of such agreements on or before the date of this Agreement; and

(g) the grant of Security Documents, including the Initial Security Documents, in compliance with the Direct Agreement or the exercise of lender remedies under such Security Documents, including foreclosure.

Change Order has the meaning set forth in Section 1.4.3 of Exhibit 9 (Change Procedures).

Change Proposal has the meaning set forth in Section 1.3.1 of Exhibit 9 (Change Procedures).

City has the meaning set forth in the Preamble.

City Access Period has the meaning set forth in Section 7.13.5.1.

City Additional Insured(s) means any (and all) of the City and County of San Francisco, and its respective successors, assigns, officeholders, officers, directors, agents, representatives, consultants and employees.

City-Caused Delay Event means any event falling under clauses (a)-(e), (k), (n), (q)-(s) and (u of the definition of Compensable Delay Event.

City Change has the meaning set forth in Section 12.2.1.

City Data means any information, data, or document, whether or not protectable Intellectual Property, which is created, developed, or collected by, or on behalf of, City related to transportation operations, national infrastructure planning and personal information of the City employees, vendors and consumers. For the avoidance of doubt, City Data shall include, but not be limited to, (a) all "nonpublic information," as defined by the Gramm-Leach-Bliley Act (15 USC § 6801 et seq.), (b) personal information as defined by California Civil Code §§ 1798.29, 1798.82, and 1798.140 (California Consumer Privacy Act of 2018, effective January 1, 2020), as amended and supplemented by the California Privacy Rights Act of 2020 (effective December 16, 2020; operative January 1, 2023), (c) protected health information or individually identifiable health information as defined by the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and the Health Information Technology for Economic and Clinical Health (HiTECH) Act or as defined by the Code of Federal Regulations (45 CFR § 160.103), and/or (d) personal data as defined by the EU General Data Protection Regulation (Regulation (EU) 2016/679). For the further avoidance of doubt, City Data is not limited to proprietary or confidential information, and need not constitute trade secret information.

City Default has the meaning set forth in Section 16.3.1 (City Default).

City Fault means:

(a) a breach by City of any of its obligations or any representation or warranty under this Agreement;

(b) City's violation of any applicable Law; or

(c) fraud, criminal conduct, intentional misconduct, recklessness, bad faith or gross negligence of the City.

City-Furnished Equipment means all FF&E classified as City-Furnished Equipment (or City-furnished) in the Technical Requirements (including items marked OP in the Equipment List, Table 5 and Table 6 of Division 1 of the Technical Requirements) or otherwise required to be included as such under Section 7.13.2 (Selection of City-Furnished Equipment).

City-Furnished Equipment List means the list of equipment identified as being City-Furnished Equipment in the Equipment List and Tables 5 and 6 of Division 1 of the Technical Requirements, as updated or amended in accordance with Section 7.13.2 (Selection of City-Furnished Equipment).

City-Furnished IT/Comms Allowance means the Allowance to be used pursuant to Section 11.11.3 (City-Furnished IT/Comms Allowance) by City for City-Furnished IT/Comms Equipment. The initial City-Furnished IT/Comms Allowance amount is identified in Section 11.11.3.

City-Furnished IT/Comms FF&E means all FF&E classified as City-Furnished IT/Comms FF&E in the Technical Requirements, all additional FF&E identified as City-furnished "IT/Comms FF&E" in Table 5 and Table 6 of Division 1 of the Technical Requirements and all additional IT/Comms Equipment selected by City under Section 7.13.1 (Selection and Procurement of NPE-Furnished FF&E).

City IP means all Intellectual Property owned by, or sufficiently licensed to, City including, without limitation, all rights, grants and interests pursuant to the Predevelopment Agreement.

City Personnel means every person employed, engaged, or hired by City or every person employed, engaged, or hired by City Contractors to carry out any of the responsibilities or any of the services provided by City with respect to the Infrastructure Facility.

City Ready for Move Condition means the following state of condition of the Project Site:

(a) With respect to Utilities, the City has turned off the Utilities;

(b) With respect to Utilities (other than City's obligations under clause (a), all Utility infrastructure will remain in place and will not be sealed, capped, disconnected, and/or controlled prior to vacation of the Project Site by City;

(c) The buildings, grounds and existing structures will remain in their current state as of the Access Date, including all furniture, equipment, materials and supplies; and

(d) All furniture, equipment, materials and supplies that are to be moved by Non-Profit Entity shall be boxed or otherwise prepared so they may be moved.

City Relocation Plan means the plan developed pursuant to the Predevelopment Agreement, and approved by City, that describes the scope of Work to be undertaken by Non-Profit Entity to fully relocate the applicable City equipment, supplies and materials from the Project Site, as described in Division 7 of Exhibit 18 (Technical Requirements).

City Relocation Scope means the scope of Work undertaken by Non-Profit Entity to fully relocate the applicable City equipment, furniture, supplies and materials from the Project Site, as more particularly described in the approved City Relocation Plan.

Claim means any claim, proceeding, action, cause of action, investigation, demand or suit (including by way of contribution or indemnity) made:

(a) in connection with this Agreement or the Infrastructure Facility; and

(b) at law or for specific performance, in equity, restitution, payment of money (including damages), increase in the Milestone Payments or Availability Payments and extension of time or other form of relief.

Code has the meaning set forth in Section 23.16.1.

Collateral Agent means (a) the Institutional Lender listed or otherwise designated in the Security Documents as trustee or agent and authorized to act on behalf of or at the direction of the other Lenders, or (b) the Institutional Lender designated to act as trustee or agent on behalf of or at the direction of the other Lenders in an intercreditor agreement or other document executed by all Lenders to whom Security Documents are outstanding at the time of execution of such document, a copy of which shall be delivered by Non-Profit Entity to City. For any Project Debt issued and held by a single Lender, Collateral Agent means such Lender. The bond trustee, if an Institutional Lender, may also be the Collateral Agent.

Commercial Close means the execution and delivery of this Agreement by Non-Profit Entity and City on the Effective Date.

Commercially Reasonable Insurance Rates means insurance premiums that are less than or equal to the greater of (a) rates that a reasonable and prudent risk manager for a Person seeking to insure comparable risks would conclude are justified by the risk protection afforded, and (b) 200% of the rates indicated for the period in question in the Base Case Financial Model and related Financial Modeling Data.

Compensable Delay Event means any of the following events or circumstances to the extent, in each case, that it directly and adversely impacts (i) the D&C Work during the D&C Period or (ii) Non-Profit Entity's completion of Punch List items between the Substantial Completion Date and the Final Acceptance Date:

(a) the implementation of a City Change, excluding any Change following a NPE Change Request, with regard to which the terms of this Agreement relating to Change Orders, including Exhibit 13, shall govern;

(b) City Fault;

(c) failure by City to (i) provide Non-Profit Entity with access to the Project Site on the Access Date; or (ii) leave the Project Site in the City Ready for Move Condition as of 90 days after the issuance of NTP 1;

(d) failure by City to issue NTP 1 or NTP 2, as applicable, within 10 Business Days after full and complete satisfaction of the conditions precedent to the relevant NTP under this Agreement;

(e) a Hazardous Materials Event caused by City;

(f) a Relevant Change in Law;

(g) discovery of an Unidentified Utility within the Project Site;

(h) a CEQA Event or a NEPA Event;

(i) compliance by Non-Profit Entity with an order or direction of an Emergency service provider in an Emergency (except for Emergencies that are or arise out of Force Majeure Termination Events);

(j) any condemnation or other taking by eminent domain of any material portion of the Project Site or the D&C Work;

(k) except with respect to Regulatory Approvals under the jurisdiction of the City acting in its regulatory capacity, failure of City to provide responses to proposed schedules, plans, design documents, and other Submittals and matters submitted to City after the Commercial Close for which response is required under this Agreement as an express prerequisite to Non-Profit Entity's right to proceed or act, within the time periods indicated in this Agreement, or if no time period is indicated, within a reasonable time, taking into consideration the nature, importance and complexity of the Submittal or matter; provided, however, that the foregoing shall apply only following delivery of Notice after the expiration of the applicable time period from Non-Profit Entity requesting such action in accordance with the terms and requirements of this Agreement;

(l) discovery at, near or on the Project Site of any archeological, paleontological or cultural resources (including historic properties), excluding any such substance or resources known or disclosed to Non-Profit Entity as of the Setting Date (or which should have been known to Non-Profit Entity pursuant to a Reasonable Investigation);

(m) discovery at, near or on the Project Site of any threatened or endangered species, excluding any such presence of species known or disclosed to Non-Profit Entity as of the Setting Date (or which should have been known to Non-Profit Entity pursuant to a Reasonable Investigation);

(n) loss or damage to the Work directly caused by City Fault;

(o) issuance of a temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction that prohibits prosecution of, or by complying with such temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction results in prohibiting the prosecution of, any material portion of the D&C Work;

(p) discovery of:

(i) actual subsurface or latent physical conditions that differ materially from the baseline subsurface conditions indicated in the Geotechnical Baseline Report, excluding any such conditions (w) that are not defined in the Geotechnical Baseline Report; (x) known or disclosed to Non-Profit Entity prior to the Setting Date; or (y) that could have been reasonably anticipated as potentially present by an experienced global civil works contractor based on the information contained in such Geotechnical Baseline Report; or

(ii) discovery of actual subsurface physical conditions within the Project Site of an unusual nature, differing materially from those ordinarily encountered in the area and generally recognized as inherent in the type of work provided for in this Agreement, excluding any such conditions known or disclosed to Non-Profit Entity prior to the Setting Date;

(q) any order of City to suspend for convenience under Section 16.2.8.3 exceeding 24 hours in total for a single suspension or 144 cumulative hours in total across multiple suspensions;

(r) subject to Non-Profit Entity complying with its obligations for coordination set forth in this Agreement, actions of the City (including its employees) or Other Contractors (other than any NPE-Related Entities and HCC-Related Entities), that materially and directly disrupts, damages or interferes with the D&C Work;

(s) a change in Standards and Specifications materially impacting the D&C Work or the Project with which City directs Non-Profit Entity to comply under this Agreement;

(t) a Hazardous Materials Event caused by Third Parties or which exists prior to the Access Date;

(u) issuance by City of a Safety Compliance Order for a reason other than to comply with Safety Standards, perform valid previously issued Safety Compliance Orders or correct a violation of Law or Regulatory Approval respecting health, safety or right of use and access;

(v) Subject to Section 14.1.10, a Tariff Event;

(w) Unidentified Early Offsite Utility Delay and Unidentified Late Offsite Utility Delay;

(x) a Major Approval Delay;

(y) a PG&E Offsite Utility Delay;

(z) a Major Utility Adjustment Delay; and

(aa) Inaccurate Utility Information.

Conditions to Assistance has the meaning set forth in Section 7.6.12.2.

Conduit Issuer means the California Municipal Finance Authority.

Confidential Information means, subject to Section 21 and without limiting applicable Law, all confidential and proprietary information that a party has designated as confidential and which is supplied, or to which access is granted, to or on behalf of the other party (whether before or after the date of this Agreement), either in writing, or in any other form, directly or indirectly pursuant to discussions with the other party and includes all analyses, compilations, studies and other documents whether prepared by or on behalf of a party which contain or otherwise reflect or are derived from such designated information.

Construction Documents means all shop drawings, working drawings, fabrication plans, material and hardware descriptions, specifications, construction quality control reports, construction quality assurance reports and samples necessary or desirable for construction of the Project included in the Construction Work, in accordance with the Contract Documents.

Construction Management Plan means Non-Profit Entity's plan describing its approach to undertake and achieve the requirements in Section 1.11 of Division 1 of the Technical Requirements, prepared and submitted by Non-Profit Entity in accordance with Section 1.1.7.2 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Construction Work means all Work to build or construct, make, form, manufacture, furnish, install, supply, deliver, landscape, equip, test and commission or demolish any structure, building, or other improvement to real property included in the Project, but excluding:

(a) Design Work, professional environmental services and similar services;

(b) preparing and processing applications for Regulatory Approvals; and

(c) coordinating with adjacent property owners and Utility Owners.

Consumer Price Index (CPI) means the Consumer Price Index for the City of San Francisco, as published by US Bureau of Labor Statistics from time to time, or failing such publication, such other index as the Parties (acting reasonably) may agree, or as may be determined in accordance with Article 18 (Partnering; Contract Dispute Procedures), which most closely resembles such index.

Contract means any agreement, and any modification of such agreement, by Non-Profit Entity with any Person to perform any part of the Work or provide any materials, equipment or supplies for any part of the Work, or any such agreement, supplement or amendment at a lower tier, between a Contractor and its lower tier Contractor or a Supplier and its lower tier Supplier, at all tiers. The term "Contract" does not include agreements with Utility Owners.

Contract Deadline means the Substantial Completion Deadline, the Final Acceptance Deadline or the Long Stop Date, as the context may require, and "Contract Deadlines" means the Substantial Completion Deadline, the Final Acceptance Deadline and the Long Stop Date, collectively.

Contract Dispute(s) means any dispute, disagreement or controversy between City and Non-Profit Entity concerning their respective rights and obligations under the Contract Documents, including concerning any Claim, alleged breach or failure to perform and remedies.

Contract Dispute Procedures means the procedures for resolving Contract Disputes set forth in Article 18 (Partnering; Contract Dispute Procedures).

Contract Documents means this Agreement and all its exhibits including the Technical Requirements and other documents identified in Section 1.2 (Contract Documents; Rules to Reconcile Conflicting Provisions).

Contract Month means a calendar month, except with respect to the first Contract Month, which runs from the Payment Commencement Date until the end of the calendar month in which the Payment Commencement Date falls, and the last Contract Month, which runs from the first day of the calendar month in which the Termination Date falls until the Termination Date.

Contract Quarter means a Quarter, except with respect to the first Contract Quarter, which runs from the Payment Commencement Date until the end of the calendar quarter in which the Payment Commencement Date falls, and the last Contract Quarter, which runs from the first day of the Quarter in which the Termination Date falls until the Termination Date.

Contract Year means a calendar year, provided that:

(i) the first Contract Year shall be such period that commences on the Payment Commencement Date and ends on the next ensuing December 31st; and

(ii) the final Contract Year shall be such period that commences on the January 1st that precedes the date on which this Agreement expires or is terminated, for whatever reason, and ends on the expiry or termination of this Agreement.

Any computation made on the basis of a Contract Year shall be adjusted on a pro rata basis to take into account any Contract Year of less than 365 or 366 days, whichever is applicable.

Contractor means any Person or entity with whom Non-Profit Entity has entered into any Contract to perform any part of the Work or provide any materials, equipment or supplies for the Project on behalf of Non-Profit Entity, and any other Person or entity with whom any Contractor has further subcontracted any part of the Work, at all tiers.

Controlling Affiliate means any Person which directly, or indirectly through one or more intermediaries, controls a majority of the voting shares of Non-Profit Entity, or controls the election of a majority of the board of directors, trustees or other persons exercising similar functions for Non-Profit Entity. For purposes of this definition, the term "control" means the possession, directly or indirectly, of the power to cause the direction of the management of a Person, whether through voting rights or securities, by contract, family relationship or otherwise.

Controlling Work Item means the activity or work item on the Critical Path of the D&C Work having the least amount of total float.

Cost and Pricing Data means the data (including calculations, formulas, unit and material prices, and other cost and fee information) acknowledged and accepted by Non-Profit Entity and Principal Project Company and delivered by Lead Developer as specified in the Predevelopment Agreement, which data supports and explains the basis of cost estimates by Non-Profit Entity and Principal Project Company for development, design and construction of the Project and provides all cost assumptions for human resources, including salary and benefits for non-management personnel performing the Work.

Cost to Complete means (without double-counting):

(a) those costs (internal and external) that City reasonably and properly projects that it will incur in carrying out any process to request tenders from any parties interested in entering into a contract with City to achieve Final Acceptance, including all costs related to the preparation of tender documentation, evaluation of tenders and negotiation and execution of relevant contracts; plus

(b) costs that City reasonably and properly projects that it will incur in achieving Final Acceptance; plus

(c) any other Losses that, but for the termination of this Agreement, City would not have incurred prior to Final Acceptance; minus

(d) any insurance proceeds available to City for the purposes of achieving Final Acceptance.

COTS (or, **Commercially Available Off-the-Shelf Software**) means Software (i) sold in substantial quantities, (ii) readily available to City without Non-Profit Entity or third party participation, (iii) provided without modification in the same form in which it is sold in the commercial marketplace, and (iv) for which there are at least two (2) readily available alternative solutions or items with the same or substantially similar design, use or function as the proposed COTS. For the avoidance of doubt, COTS does not include so-called open source software or sole-source software.

Critical Path means each critical path on the Project Schedule, which ends on the Substantial Completion Deadline or the Final Acceptance Deadline, as applicable (i.e., the term shall apply only following consumption of all available Float in the schedule for Substantial Completion or

Final Acceptance, as applicable). The lower case term "critical path" means the activities and durations associated with the longest chain(s) of logically connected activities through the Project Schedule with the least amount of total float for all chains.

Critical Path Method (CPM) is a method of planning and scheduling a construction project where activities are arranged based on activity relationships.

Current Status Documents has the meaning set forth in Section 1.6.4(C) of Division 1 of the Technical Requirements.

Daily Delay Cost Amount means the amounts set forth in Exhibit 8, representing the full amount of costs for delay and disruption damages, Delay Costs, extended overhead and similar costs incurred by or on behalf of Non-Profit Entity, Principal Project Company, D&C Contractor and all other NPE-Related Entities for each day of delay of the Work.

DBI means the City's Department of Building Inspection.

D&C Contract means:

(a) the contract for the D&C Work entered into between Principal Project Company and D&C Contractor dated on or about the date of this Agreement; and

(b) any other contract between Principal Project Company and a Subcontractor for the undertaking of the D&C Work.

D&C Contract Amount means $612,107,000.

D&C Contractor means the Contractor primarily responsible for the D&C Work.

D&C Contractor Guarantor means each Person that provides a D&C Contractor Guaranty.

D&C Contractor Guaranty has the meaning set forth in Section 10.5.1.

D&C Failure Event means each event identified in the D&C Failure Events Table which occurs prior to the Final Acceptance Date.

D&C Failure Events Table means the table in Appendix A of Exhibit 4A (Milestone Payment Mechanism).

D&C Management Plan means the City-approved document included in the approved Project Management Plan setting forth Non-Profit Entity's prescribed approaches to, and plan for, its scope of Work, as it may be modified and updated from time to time, following written approval thereof by City. The preliminary D&C Management Plan shall be replaced by the final approved D&C Management Plan, which shall be developed by Non-Profit Entity and approved by City pursuant to Division 1 of the Technical Requirements, as a condition precedent to issuance of NTP 2, as updated in accordance with this Agreement.

D&C Noncompliance Event means a D&C Failure Event occurs which, where a Rectification Time applies, has not been Rectified within the relevant time. For the avoidance of doubt, where no Rectification Time applies (for example, in respect of scheduled activities) there shall be a

D&C Noncompliance Event at the point at which the D&C Failure Event occurred (for example, non-performance of the scheduled activity by the scheduled time).

D&C Noncompliance Points means points accrued in association with each D&C Noncompliance Event as set out in Appendix A (D&C Noncompliance Points and Deductions) of Exhibit 4A (Milestone Payment Mechanism).

D&C Payment Bond means the payment bond(s) to secure payment for labor and materials for the D&C Work, as required under this Agreement.

D&C Percentage means the value of Design Work, Construction Work, and Work relating to the manufacturing and supply of equipment, completed at a given point in time divided by the value of the total Design Work, Construction Work, and Work relating to the manufacturing and supply of equipment required to be completed to achieve Final Acceptance.

D&C Performance Bond means the performance bond(s) securing performance of the D&C Work required under this Agreement.

D&C Performance Security has the meaning set forth in Section 10.2.2.1.

D&C Period means that portion of the Term that commences on the Effective Date and ends at 11:59 p.m. on the day immediately preceding the Substantial Completion Date.

D&C Period Deduction means a deduction from Milestone Payment 2 made in accordance with Section 2 (D&C Period Deductions) of Exhibit 4A (Milestone Payment Mechanism).

D&C Period Residual Amounts has the meaning set forth in Section 11.10.2.

D&C Quality Management Plan means Non-Profit Entity's plan to ensure that the Project deliverables and completed Work meet the minimum required standards of quality, prepared and submitted by Non-Profit Entity in accordance with Section 1.4 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

D&C Site means the real property owned by City, under the jurisdiction of SFMTA, commonly known as 2500 Mariposa Street in San Francisco, California, which is a 4.4-acre site comprised of Assessor's Block No. 3971-001, bounded by Bryant Streets, 17th Street, Hampshire Street, and Mariposa Street, any Additional Properties acquired by City in accordance with Section 7.5.1 (Additional Acquisitions), and such additional areas as may, from time to time, be designated in writing by City for Non-Profit Entity's use in performance of the Work. If the parcel is later subdivided to accommodate the HCC, this definition may be amended upon mutual agreement. For purposes of insurance (subject to any notification and other requirements imposed by the insurer(s) for approval), indemnification, safety and security requirements, the prevailing wage requirements, and payment for use of equipment, the term "Project Site" shall also include (a) the field office sites, (b) any property used for bonded storage of material for the Project approved by City, (c) staging areas dedicated to the Project, and (d) areas where activities incidental to the Project are being performed by Non-Profit Entity and Contractors covered by the worker's compensation policy but excluding any permanent locations of Non-Profit Entity or such covered Contractors.

D&C Work means all Work to be performed to achieve Final Acceptance, including Design Work and Construction Work.

D&C Work Value means an amount equal to the D&C Contract Amount minus the aggregate of (i) the Cost to Complete, (ii) the amount of Milestone Payment 1 if paid to Non-Profit Entity prior to the Early Termination Date, and (iii) any other reduction to Milestone Payment 2 under Exhibit 4 (Payment Mechanism) accrued prior to the Early Termination Date that has not been deducted from Milestone Payment 2.

Day means calendar day, unless otherwise expressly specified.

Disadvantaged Business Enterprise or **DBE** means a disadvantaged business enterprise as defined in 49 CFR § 26.5 (2025).

Default Notice has the meaning set forth in Section 16.1.2.2.

Default Termination Event has the meaning set forth in Section 17.3.1.1.

Defect means a defect, whether due to design, construction, installation, damage or wear, affecting the condition, use, functionality or operation of any element of the Project, which would cause or have a reasonable likelihood to cause one or more of the following:

(a) a hazard, nuisance or other risk to public or worker health or safety, including the health and safety of Building Occupants;

(b) a structural deterioration of the affected element or any other part of the Project;

(c) damage to a Third Party's property or equipment;

(d) damage to the Environment; and

(e) failure of the affected element to meet the requirements of the Contract Documents.

Delay Costs means direct costs incurred by Non-Profit Entity relating to D&C Work as allowed pursuant to this Agreement, which is payable at the Daily Delay Cost Amount, or some portion of such amount. The term "Delay Costs" does not include any Extra Work Costs, including those incurred by Non-Profit Entity that relate to non-Controlling Work Items incident or collateral to a Delay Event or Controlling Work Items that do not result solely and directly from a Delay Event. In any event, Non-Profit Entity shall not be entitled to Delay Costs to the extent Non-Profit Entity is responsible for the delay or could have reasonably mitigated such costs.

Delay Event means any of the following events or circumstances that occurs prior to the Final Acceptance Date and directly impacts the D&C Work:

(a) an Unavoidable Delay Event; or

(b) a Compensable Delay Event.

Delayed Financial Close Date has the meaning set forth in Section 3.4.2(a).

Design Deliverables has the meaning set forth in Section 1.8.5 of Division 1 of the Technical Requirements.

Design Documents means all studies, quantitative assessments, evaluations, reports, documents, calculations, plans, drawings, diagrams, specifications, and other documentation that manifest the design for the Project, at all stages, as developed by Non-Profit Entity or any portion, component or element thereof, in each case regardless of whether such documents are required by the Contract Documents or are prepared or used by Non-Profit Entity in the Design Work. Design Documents include the Final Design Documents.

Design Management Plan means Non-Profit Entity's plan describing its approach to undertake and achieve the requirements in Section 1.8 of Division 1 of the Technical Requirements, prepared and submitted by Non-Profit Entity in accordance with Section 1.1.7.1 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Design Work means all Work related to the design, engineering, architecture and other professional services for the Project, including all such Work relating to the Infrastructure Facility. Design Work includes any Early Works related to the design, engineering, architecture and other professional services for the Project.

Developed IP means Intellectual Property that is authored, created, invented or reduced to practice under or for the purposes of this Agreement, the Work or the Project, whether or not such Intellectual Property is incorporated into the Project IP but excluding any adaptation, continuation or derivative work that constitutes NPE Intellectual Property.

Deviation(s) means any change, deviation, modification or alteration from the Technical Requirements (other than Change Orders and amendments to this Agreement). Deviations are not intended to amend or modify portions of this Agreement other than the Technical Requirements.

Direct Agreement means the agreement substantially in the form of Exhibit 5B (Form of Direct Agreement), by and among City, Non-Profit Entity and the Lender (or if there is more than one Lender, the Collateral Agent on behalf of the Lenders) in connection with Lenders' rights in relation to the Contract Documents.

Early Termination Date means the effective date of termination of this Agreement prior to the stated expiration of the Term set forth in Section 2.3 (Term).

Early Works has the meaning set forth in the Early Works Agreement.

Early Works Agreement means the agreement entered into by City and Non-Profit Entity or an Affiliate with respect to the performance of certain Work by Non-Profit Entity or such Affiliate during the PDA Term and prior to Financial Close.

Earthquake means all land movement due to seismic activity, including shocks, tremors, volcanic action, tsunami and earth rising or shifting, including any aftershocks or other Earthquakes for a period of 168 hours after the initial event, which proximately causes damage to the physical improvements of the Project or interrupts the Work.

Effective Date means the date of Commercial Close.

Eligible Funds means has the meaning set forth in Section 23.16.4(c).

Eligible LC Issuer means a financial institution with long term unsecured debt ratings of at least the following, from at least two of the listed major rating agencies: (a) A- by Standard & Poor's Ratings Services; (b) A3 by Moody's Investor Service, Inc.; or (c) A- by Fitch Ratings.

Eligible Surety(ies) means a surety or insurance company, as applicable, meeting the requirements of applicable Law, licensed or authorized to do business in the State and rated at least "A" (excellent or above) according to A.M. Best's Financial Strength Rating and "VIII" or better according to A.M. Best's Financial Size Rating.

Emergency means any unplanned event within or adjacent to the Project Site that (a) causes or has the potential to cause disruption to operation of the Infrastructure Facility, (b) presents an immediate or imminent threat to the long term integrity of any part of the Facility, to the Environment, to property immediately adjacent to the Facility or to the safety of Building Occupants or the traveling public, or (c) is recognized or declared to be an emergency by the Mayor, Board of Supervisors, any other City official authorized under law, the Governor of the State, the Federal Emergency Management Administration (FEMA), the U.S. Department of Homeland Security or other Governmental Entity with authority to declare an emergency.

Energy means energy/power including electricity and natural gas.

Engineer of Record (EOR) has the meaning set forth in Section 1.1.4.5 of Division 10 of the Technical Requirements.

Environment means air, soils, submerged lands, surface waters, groundwaters, land, stream sediments, surface or subsurface strata, biological resources, including endangered, threatened and sensitive species, natural systems, including ecosystems, cultural (including historic and archaeological) resources and paleontological resources.

Environmental Approvals means all Regulatory Approvals arising from or required by any Environmental Law in connection with the Project.

Environmental Compliance Plan means the procedures and plans described in Sections 01 35 43 of Division 10 of the Technical Requirements.

Environmental Law(s) means (a) any Law applicable to the Project or the Work regulating or imposing liability or standards of conduct that pertains to the Environment, Hazardous Materials, contamination of any type whatsoever, or health and safety matters, and (b) any requirements and standards that pertain to the protection of the Environment, or to the management or Release of Hazardous Materials, contamination of any type whatsoever, or health and safety matters with respect to Hazardous Materials, set forth in any agreements, permits, licenses, approvals, plans, rules, regulations or ordinances adopted, or other criteria and guidelines promulgated, pursuant to Laws applicable to the Project or the Work, as each of the foregoing have been or are amended, modified, or supplemented from time to time (including any present and future amendments thereto and reauthorizations thereof), including those relating to:

(a) the manufacture, processing, use, distribution, existence, treatment, storage, disposal, generation and transportation of Hazardous Materials;

(b) air, soil, surface and subsurface strata, stream sediments, surface water, and groundwater;

(c) releases of Hazardous Materials;

(d) protection of wildlife, endangered, threatened, and sensitive species, wetlands, water courses and water bodies, paleontological, cultural, archaeological and historical resources and natural resources;

(e) the operation and closure of underground or aboveground storage tanks;

(f) health and safety of employees and other persons with respect to Hazardous Materials; and

(g) notification, documentation and record keeping requirements relating to the foregoing.

Without limiting the above, the term "Environmental Laws" shall also include the following (each as may be amended from time to time):

(i) the National Environmental Policy Act (42 U.S.C. § 4321 et seq.);

(ii) the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. § 9601 et seq.) and associated Superfund Amendments and Reauthorization Act (42 U.S.C. § 9601 et seq.);

(iii) the Solid Waste Disposal Act (42 U.S.C. § 6901 et seq.);

(iv) the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. § 11001 et seq.);

(v) the Clean Air Act (42 U.S.C. § 7401 et seq.);

(vi) the Federal Water Pollution Control Act, as amended by the Clean Water Act (33 U.S.C. § 1251 et seq.);

(vii) the Resource Conservation and Recovery Act (42 U.S.C. § 6901 et seq.);

(viii) the Hazardous and Solid Waste Amendments of 1984 (42 U.S.C. § 6924 et seq.);

(ix) the Toxic Substances Control Act (15 U.S.C. § 2601 et seq.);

(x) the Hazardous Materials Transportation Act (49 U.S.C. § 5101 et seq.);

(xi) section 404 of the Clean Water Act (33 U.S.C. § 1344);

(xii) the Oil Pollution Act (33 U.S.C. § 2701 et. seq.);

(xiii) the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. § 136 et seq.);

(xiv) the Federal Safe Drinking Water Act (42 U.S.C. § 300 et seq.);

(xv) the Federal Radon and Indoor Air Quality Research Act (42 U.S.C. § 7401 et seq.);

(xvi) the Occupational Safety and Health Act (29 U.S.C. § 651 et seq.);

(xvii) the Endangered Species Act (16 U.S.C. § 1531 et seq.);

(xviii) the Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.);

(xix) the California Environmental Quality Act (§ 21000 et seq. of the California Public Resources Code);

(xx) the California Clean Air Act of 1988 (§ 39000 et seq. of the California Health and Safety Code);

(xxi) the California Occupational Safety and Health Act of 1973 (§ 6300 et seq. of the California Labor Code);

(xxii) the Porter-Cologne Water Quality Act (§ 13000 et seq. of the California Water Code);

(xxiii) the Integrated Waste Management Act of 1989 (§ 40000 et seq. of the California Public Resources Code);

(xxiv) the Safe Drinking Water and Toxic Enforcement Act of 1986 (§ 25249.5 et seq. of the California Health and Safety Code);

(xxv) Hazardous Waste Control (§ 25100 et seq. of the California Health and Safety Code); and

(xxvi) Fish and Wildlife Protection and Conservation (§ 1600 et seq. of the California Fish and Game Code).

Environmental Protection Program means the overarching system by which Non-Profit Entity shall ensure that commitments made during the environmental approval and permitting processes, and other environmental requirements, be carried forward and reflected, as appropriate, in the design and implemented throughout the Work, as provided in Sections 01 35 43, and 01 35 50 of Division 10 of the Technical Requirements.

Equipment List means the list of all FF&E for the Infrastructure Facility prepared and maintained in accordance with this Agreement which identifies NPE-Furnished FF&E, City-Furnished Equipment and Existing FF&E. The initial form of the Equipment List is included in Appendix 1 of Division 3 of the Technical Requirements.

Equity Member(s) means (a) PNC Holdco LLC and any Person that holds a direct ownership interest (legal and beneficial) in Non-Profit Entity or Principal Project Company as a result of an Equity Transfer; or (b) each Person that will hold a 10% or greater indirect interest in Non-Profit Entity.

Equity Member(s) Debt means bona fide indebtedness for funds borrowed that: (a) is held by any Equity Member or Affiliate of any Equity Member; and (b) is subordinated in priority of

payment and security to all Project Debt held by Persons who are not Equity Members or Affiliates of any Equity Member.

Equity Transfer means any assignment, mortgage, encumbrance, hypothecation, conveyance, sale, or other transfer of equity interest in Non-Profit Entity and/or Principal Project Company.

ESA means, collectively, (i) the Final Phase II Environmental Site Assessment Report for SFMTA Potrero Facility Rebuild, in its entirety, by AEW dated November 6, 2018; and (ii) the Additional Phase II Site Investigation Report for SFMTA Potrero Yard Modernization Program, in its entirety, by Arcadis, dated March 12, 2024.

Escalation Factor means the escalation factor calculated in accordance with Section 4 (Escalation Factor) of Exhibit 4B (Availability Payment Mechanism).

Exempt Refinancing means:

(a) any Refinancing that was fully and specifically identified and taken into account in the Base Case Financial Model;

(b) any of the following, provided that Non-Profit Entity does not receive a direct or indirect financial benefit therefrom, individually or in the aggregate: (i) amendments, modifications, supplements or consents to Financing Agreements and Security Documents; or (ii) the exercise by a Lender of rights, waivers, consents and similar actions, in the ordinary course of day-to-day loan administration and supervision;

(c) movement of monies between the Project accounts in accordance with the terms of Financing Agreements and Security Documents;

(d) any of the following acts by a Lender of senior lien priority Project Debt: (i) the syndication of any of such Lender's rights and interests in the senior Financing Agreements; (ii) the grant by such Lender of any rights of participation, or the disposition by such Lender of any of its rights or interests, with respect to the senior Financing Agreements in favor of any other Lender of senior lien Project Debt or any other investor; or (iii) the grant by such Lender of any other form of benefit or interest in either the senior Financing Agreements or the revenues or assets of Non-Profit Entity, whether by way of security or otherwise, in favor of any other Lender of senior lien Project Debt or any investor; and

(e) periodic resetting and remarketing of tax-exempt or taxable bonds that bear interest at a variable or floating rate and are money market eligible under SEC Rule 2a-7.

(f) any Refinancing that occurs due to an audit of (i) Non-Profit Entity, (ii) any tax-exempt financing for the Project, or (iii) Non-Profit Parent, and which, in any of the foregoing cases, is required (x) for Non-Profit Parent to maintain its tax-exempt status or (y)to maintain any exemption of interest payable under any tax-exempt financing from federal income tax.

Existing FF&E means all FF&E identified by City in the updated Equipment List under Section 7.13.2 (Selection of City-Furnished Equipment and Existing FF&E).

Exterior OCS Work Allowance means the Allowance to be used pursuant to Section 11.12.7 (Exterior OCS Work Allowance) by Developer for cost and expenses for Work associated with the temporary removal and new OCS installation outside of the Project Site. The initial Exterior OCS Work Allowance amount is identified in Section 11.12.7.

Extra Work means any Work in the nature of additional work, altered work or deleted work that is directly attributable to the occurrence of a Compensable Delay Event or uninsured Force Majeure Event (to the extent permitted under Section 14.6 (Loss or Damage Due to Force Majeure Termination Event)) and, absent the Compensable Delay Event or uninsured Force Majeure Event (to the extent permitted under Section 14.6 (Loss or Damage Due to Force Majeure Termination Event)), would not be required by the Contract Documents. The term "Extra Work" does not include "Delay".

Extra Work Costs means the incremental increase in Non-Profit Entity's cost of labor, material, equipment and other direct and indirect costs directly attributable to Extra Work, calculated in accordance with Section 1 of Exhibit 13 (Costs Schedule). Extra Work Costs do not include Financing Delay Costs, Delay Costs, delay and disruption damages, extended overhead or similar costs.

Facility means the Infrastructure Facility and the HCC (if built), collectively.

Final Acceptance means that all D&C Work is complete and all other prerequisites for Final Acceptance have been met. Final Acceptance is deemed to have occurred upon satisfaction of all the conditions in Section 7.9 (Final Acceptance), as confirmed by City's issuance of a certificate in accordance with the procedures and within the time frame established in Section 7.9 (Final Acceptance).

Final Acceptance Date means the date that Final Acceptance is achieved.

Final Acceptance Deadline means 180 days after the Substantial Completion Date, as such date may be extended from time to time pursuant to Section 14.1.2 (Extension of Deadlines for General Delay Events).

Final Design means the general design stage, consistent of all elements, collections of elements or areas of the Project at 100% design completion, as more fully set forth in the Technical Requirements, and depending on the context: the term "Final Design" may refer to (a) the Final Design Documents, (b) the design concepts set forth in the Final Design Documents or (c) the process of development of the Final Design Documents.

Final Design Documents means the complete final construction plans (including plan sheets, specifications, technical memoranda, reports, studies, calculations, drawings, elevations, sections, details and diagrams) and specifications needed for performance of Construction Work, which includes all Submittals specified as required to be part of the Final Design or Final Design Documents under the Technical Requirements.

Final Environmental Impact Report (FEIR) means the Final Environmental Impact Report for the Potrero Yard Modernization Project at 2500 Mariposa Street available at https://sfplanning.org/environmental-review-documents?title=Potrero+Yard+Modernization+Project.

Final Schedule Report means has the meaning set forth in Section 1.2.5 of Division 1 of the Technical Requirements.

Finance Plan means the plan for financing the Project submitted to City at Performance Milestone 32 of the Predevelopment Agreement.

Finance Plan Due Date means the date on which the final Finance Plan was submitted to City at Performance Milestone 32 of the Predevelopment Agreement.

Finance Plan Validity Period means the period of 180 consecutive days commencing on the Finance Plan Due Date, as such period may be extended under the terms of the Predevelopment Agreement. If the period of 180 consecutive days commencing on the Finance Plan Due Date ends on a weekend or national holiday, then the Final Finance Plan Validity Period shall end on the next Business Day.

Financial Close means satisfaction by Non-Profit Entity of (a) all conditions precedent to the effectiveness of commitments of the Lenders under the Financing Documents; and (b) the conditions set forth in Section 3.2.4 (Conditions Precedent to Financial Close).

Financial Close Date means the date on which Financial Close occurs.

Financial Close Deadline means June 19, 2026, as such date may be extended by agreement of the Parties or as a result of an Adverse Event or other excuse set forth in this Agreement.

Financial Close Security means the bond or letter of credit in the amount of $15,000,000 provided by Non-Profit Entity to City as a condition precedent to execution and delivery of this Agreement by both City and Non-Profit Entity.

Financial Model means the Microsoft Excel-based financial model that includes financial forecasts, projections and calculations with respect to revenues, expenses, the repayment of Project Debt, which shall be in macro-enabled excel format, on electronic storage media, or in such other format and medium as the Parties may agree in writing.

Financial Model Update(s) has the meaning set forth in Section 4.7.2.1.

Financial Modeling Data means all books, documents and back-up information in any media or format setting forth all assumptions, estimates, projections, calculations and methodology used in the preparation of the Implementation Proposal, the Financial Model, and in Financial Model Updates of revenues, pricing, costs, expenses and repayment of Project Debt, including:

(a) the logical layout and structure of the Financial Model, including the names of all worksheets and a description of the color coding and/or labeling scheme(s);

(b) an assumptions book, fully describing all assumptions and their sources underlying the estimates, projections and calculations in the Financial Model, revisions to the Base Case Financial Model in accordance with Sections 3.2.4 (Conditions Precedent to Financial Close) and 3.3.1, and updates to such assumptions book related to Financial Model Updates;

(c) a detailed description of the function and intended use of all macros (each of which must be logically structured and well documented with comments included

within the programming code);

(d) the step-by-step instructions on the procedure to run and to optimize the Financial Model submitted with the Finance Plan and each Financial Model Update, such that City will be able to read, use and modify the data contained therein, operate the Financial Model and conduct detailed sensitivity analyses;

(e) copies of all offers, and all data and information within this definition, received from all Contractors (at all tiers) identified in the Implementation Proposal;

(f) copies of all offers, and all data and information within this definition, received from all Contractors (at all tiers) related to any Delay Event or Change Order; and

(g) all other supporting data, technical memoranda, calculations, formulas, unit and materials prices (if applicable) and such other cost, charge, fee, financing, equity return, and revenue information used by Principal Project Company in the creation and derivation of the Implementation Proposal, Finance Plan, the Financial Model, or of any Financial Model Update, or related to any Delay Event or Change Order.

Financial Proposal means the Financial Proposal provided at Exhibit 3A (Financial Proposal).

Financing Agreement means:

(a) any loan agreement, bond purchase agreement ,funding agreement, account maintenance or control agreement, insurance or reimbursement agreement, collateral agency and intercreditor agreement, subordination agreement, trust indenture, agreement from any Equity Member in favor of any Lender, hedging agreement, interest rate swap agreement, guaranty, indemnity agreement, agreement between any Contractor and any Lender, or other agreement by, with or in favor of any Lender pertaining to Project Debt (including any Refinancing), other than Security Documents;

(b) any note, bond or other negotiable or non-negotiable instrument evidencing the indebtedness of Non-Profit Entity for Project Debt (including any Refinancing); and

(c) any amendment, supplement, variation or waiver of any of the foregoing agreements or instruments.

Financing Delay Costs means in the case of Delay Events, an amount equal to principal payments, interest payments, hedging costs and other financing costs accrued and/or paid, or which became payable, by Non-Profit Entity to the Senior Lenders in accordance with the Financing Agreements that accrued during the period of the schedule extension granted pursuant to Section 14.1.2 (Extension of Deadlines for General Delay Events).

Financing Documents means Financing Agreements and Security Documents.

Financing Document Terms means Exhibit 5G (Financing Document Terms).

Fiscal Year means the consecutive 12 calendar month period starting on July 1 and ending on June 30.

Float means the amount of time that any given activity or logically connected sequence of activities shown on the Project Schedule may be delayed before it will affect the Substantial Completion Deadline or Final Acceptance Deadline, as applicable. Float is generally identified on the Project Schedule as the difference between the early start date and late start date, or early completion date and late completion date for activities shown on the Project Schedule, and shall include any float contained within an activity as well as any period containing an artificial activity (that is, an activity that is not encompassed within the meaning of the definition of "D&C Work").

Force Account Work means Change Order work that City authorizes and will pay for on the basis of direct costs plus markup on direct costs for overhead and profit as provided in Exhibit 13 (Costs Schedule).

Force Majeure Event means the occurrence of any of the following events or circumstances which directly causes either Party to be unable to perform all or a material part of its obligations under this Agreement:

(a) war (including civil war or revolution), invasion, violent act of foreign enemy or armed conflict occurring within the continental United States or military or armed blockade, or military or armed takeover of the Project;

(b) any act of terrorism, riot, insurrection, civil commotion or sabotage that causes direct physical damage to, or otherwise directly causes interruption to construction of, or incurrence of direct losses during the performance of Warranty Work in respect of, the Project;

(c) national or state-wide strikes not specific to Non-Profit Entity, or embargoes, that, in each case, directly cause interruption to construction of, or incurrence of direct losses during the performance of Warranty Work in respect of, the Project;

(d) nuclear, radioactive, or biological contamination of the Project unless the source or cause of the contamination is brought to or near the Project Site by NPE-Related Entities, or is the result of any NPE Fault;

(e) flood, fire, explosion, tidal wave, sinkhole caused by natural events, or landslide caused by natural events, in each case, occurring within the City and directly impacting the Project or performance of Work;

(f) SFMTA staff strikes and work stoppages not caused by NPE Fault that directly cause interruption to construction of, or incurrence of direct losses during the performance of Warranty Work in respect of, the Project;

(g) any City, or governor-declared, Emergency within the limits or precluding access to the Project Site;

(h) (i) any epidemic in the State; or (ii) Pandemic (defined as the worldwide spread of a disease due to lack of immunity in most people, excluding COVID-19);

(i) a Change in Law (other than a Relevant Change in Law); and

(j) Intentionally Omitted; and

(k) a seismic event in excess of a magnitude 3.5 on the Richter Scale, where (i) such Earthquakes, ground shaking, liquefaction, settlement, or ground movements directly impact, and cause damage to, temporary or permanent works of the Project; and (ii) such event is not insured or required to be insured under the terms of the Contract Documents.

Force Majeure Termination Event has the meaning given in Section 17.2.1.

Geotechnical Baseline Report (GBR) means the report entitled Geotechnical Baseline Report, set forth in Appendix I of Division 3 of the Technical Requirements.

Good Faith Efforts means with respect to SBE, the efforts to meet the SBE Goal(s) required by the Project Agreement.

Good Industry Practice means:

(a) in the case of Work (excluding the Design Work), the exercise of the degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced constructor or supplier, as applicable, operating in the United States under the same or similar circumstances and conditions, seeking in good faith to comply with its contractual obligations, the Contract Documents and all applicable Laws and Regulatory Approvals in conformance with all professional engineering principles and construction practices generally accepted as standards of the industry in the State. With respect to storm water management for construction activities, Good Industry Practice means Best Management Practices; and

(b) in the case of Design Work, the exercise of the degree of skill, diligence, prudence, and foresight which would reasonably and ordinarily be expected from a professional designer or engineer, as applicable, operating in the United States under the same or similar circumstances and conditions, seeking in good faith to comply with its contractual obligations, the Contract Documents and all applicable Laws and Regulatory Approvals and engaged in the same type of undertaking under circumstances similar to the Project and conditions similar to those within the same geographic area as the Project Site.

Government Code Dispute has the meaning set forth in Section 18.4 (Government Code Dispute).

Governmental Entity(ies) means City in its regulatory capacity, any federal, state, local or foreign government and any political subdivision or any governmental, quasi-governmental, judicial, public or statutory instrumentality, administrative agency, authority, body or entity other.

Governmental Utility(ies) has the meaning set forth in Section 00 73 20 of Division 10 of the Technical Requirements.

Guidelines has the meaning set forth in Section 23.16.4(b).

Hazardous Material(s) means any (a) substance, product, waste, pollutant, contaminant or other material of any nature whatsoever that exceeds maximum allowable concentrations for that material, as defined by any Environmental Law; (b) substance, product, waste, pollutant, contaminant or other material of any nature whatsoever that is or becomes listed, regulated, or addressed under any Environmental Law; (c) substance, product, waste, pollutant, contaminant or other material of any nature whatsoever which may give rise to liability under clause (a) or (b) or under any statutory or common law theory based on negligence, trespass, intentional tort, nuisance, or strict liability or under any reported decisions of a state or federal court; (d) petroleum hydrocarbons excluding de minimis amounts and excluding petroleum hydrocarbon products contained within regularly operated motor vehicles; and (e) hazardous building materials including asbestos or asbestos-containing materials, lead or PCBs in structures and/or other improvements on or in the Project Site or in subsurface artifacts. The term "Hazardous Materials" includes Hazardous Waste and contaminated materials.

Hazardous Materials Event means Hazardous Materials in, over, under or emanating from the Project Site or which has migrated onto the Project Site from land or premises adjoining the Project Site that (1) render use of the Project unsafe or potentially unsafe absent assessment, containment and/or remediation, or (2) are required by applicable Law to be recycled, treated or stored, excluding Hazardous Materials:

(a) that are Known or Suspected Hazardous Materials; and

(b) to the extent caused, contributed, or, once discovered, exacerbated, by any NPE-Related Entity.

Hazardous Materials Management means procedures, practices and activities to address and comply with Environmental Laws and Environmental Approvals with respect to Hazardous Materials encountered, impacted, caused by or occurring in connection with the Project, Project Site or the Work (including demolition Work), including investigation and remediation of such Hazardous Materials. Hazardous Materials Management may include sampling, characterization, stock-piling, storage, backfilling in place, asphalt batching, recycling, treatment, clean-up, remediation, transportation and/or off-site disposal of Hazardous Materials, whichever approach is effective, most cost-efficient and permitted under applicable Law.

Hazardous Waste means waste as defined in 40 CFR Part 261 and/or 22 California Code of Regulations 66260.10.

HCC Agreement means an agreement between City and the Housing Project Company (or between City and the Non-Profit Entity and assigned by Non-Profit Entity to a Housing Project Company), pursuant to which City will grant a long-term real property interest in certain premises for the development of the Housing and Commercial Component.

HCC Project Company means an entity, including a special-purpose entity(ies), that will undertake the HCC pursuant to an amendment to this Agreement or a separate agreement, including an HCC Agreement.

HCC-Related Entity(ies) means:

(a) the HCC Project Company;

(b) any other persons or entities performing any work relating to the HCC;

(c) any Affiliate of the Non-Profit Entity or the Principal Project Company and any affiliate of any other NPE-Related Entity, the HCC Project Company and any other HCC-Related Entity participating in or responsible for any aspect of the HCC;

(d) any other persons or entities for which the HCC Project Company may be legally or contractually responsible;

(e) any non-City party to any separate agreement relating to the HCC, including an HCC Agreement, including all subcontractors, subconsultants and suppliers of any tier; and

(f) the employees, personnel, officers, directors, agents, representatives, successors and assigns of any of the foregoing.

Health and Safety Plan means Non-Profit Entity's plan describing the policies and procedures to be followed by all NPE and PPC personnel at the Site under CFR Title 29, CCR Title 8 and other applicable regulations, prepared and submitted by Non-Profit Entity in accordance with Section 01 35 45 of Division 10, as updated and approved by the City in accordance with this Agreement.

Housing and Commercial Component or **HCC** means the Facility's housing and commercial component, which, if implemented, would include the commercial space, the housing units and their associated support spaces (e.g., lobbies, vertical and horizontal circulation, storage, open space, rooms for building systems, offices for property management and residential services, and resident amenities such as laundry and community rooms) that are not used for the Infrastructure Facility.

Implementation Proposal means the Financial Proposal, provided at Exhibit 3A (Financial Proposal); and the specific elements of the documents, if any, included at Exhibit 3B (Technical Proposal Elements).

Implementation Proposal Final Price means the full and complete fixed price for all D&C Work included in the Implementation Proposal.

Inaccurate Utility Information means during performance of Construction Work, Non-Profit Entity encounters any Non-Dig Alert Utilities located at the Project Site that requires a Utility Adjustment, and such Utility is (i) an Unidentified Utility; (ii) not a Service Line (other than an Active Service Line); and (iii) not identified or reflected in whole or in part in the Utility Information.

Incidental Utility Work means, for all Utilities, all of the following work necessary for construction of the Project, including any necessary coordination with Utility Owners and property owners, furnishing design, performing construction, and obtaining and complying with all required Regulatory Approvals:

(a) Service Line relocations;

(b) The adjustment of Utility appurtenances (e.g., manholes, valve boxes and vaults) for line and grade upon completion of roadway work;

(c) Protection in Place of Utilities;

(d) All work necessary to remove and dispose of any Utilities (whether or not in use as of the Effective Date) in situations for which leaving the Utilities in place is not feasible or not permitted, or is required in order to accommodate or permit construction of the Project, regardless of whether replacements for such Utilities are being or have been installed in other locations;

(e) All work necessary to abandon in place any Utility in accordance with applicable Law and proper Utility Owner and/or industry procedures (e.g., flushing, capping, slurry backfill, etc.) regardless of whether replacements for such Utilities are being or have been installed in other locations;

(f) Traffic control for Utility Adjustment work;

(g) Resurfacing and re-striping of streets; reconstruction of curbs, gutters and sidewalks; reinstallation of signage; and reinstallation or replacement of traffic signals;

(h) Supplemental investigation, potholing, electronic detection, surveying and any other methods used to determine Utility locations, preparation of Non-Profit Entity's Utility conflict matrix and other material information concerning Utilities;

(i) Temporary Relocations; and

(j) Earthwork trenching requested by a Utility Owner.

Increased Oversight Cure Plan means the plan including specific actions (including timeframes) to be taken by Non-Profit Entity, to improve its performance, prepared and submitted by Non-Profit Entity in accordance with Section 15.6.4(a) of the Agreement, as updated and approved by the City in accordance with this Agreement.

Increased Oversight Threshold means:

(a) Non-Profit Entity receives a total of 200 or more Noncompliance Points over the course of 12 consecutive calendar months (determined on a rolling basis); or

(b) Non-Profit Entity receives a total of 350 or more Noncompliance Points over the course of 36 consecutive calendar months (determined on a rolling basis).

Indemnitees means City, including its boards and commissions, other persons and entities designated as "Indemnitees" in the Contract Documents, and all of their respective officeholders, officers, directors, agents, members, consultants, employees, authorized representatives, successors, and assigns.

Information Management Plan means Non-Profit Entity's plan describing procedures to produce and control all documentation and relevant information, prepared and submitted by Non-Profit Entity in accordance with Section 1.6 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Infrastructure Facility means the Facility's transit operations component, which (a) will include the spaces needed for City's operation and maintenance activities at the Facility after Substantial Completion of the Infrastructure Facility, and (b) must meet the Infrastructure Facility criteria in the Technical Requirements except as otherwise approved by City in writing, which approval shall be at its sole discretion. The Infrastructure Facility is generally described in the "Project Description" included in Division 1 of the Technical Requirements..

Initial Financing Agreements means the documents identified in Part A (Initial Financing Agreements) of Exhibit 5A (List of Initial Financing Documents).

Initial Financing Documents means Initial Financing Agreements and Initial Security Documents.

Initial Project Debt means the Project Debt originally incurred to finance the Project and Work, in the total face amount at each lien priority, and with the particular Lenders, set forth in the Contract Documents, which Project Debt is evidenced by the Initial Financing Agreements and secured by the Initial Security Documents.

Initial Schedule means the schedule attached as Exhibit 19 (Initial Schedule), setting out all the relevant D&C Work activities from Commercial Close through Final Acceptance, with key interim milestones during that period of work, and at a minimum at Level 3 defined in AACE 91R-16 "Schedule Development".

Initial Security Documents means the documents identified in Part B (Initial Security Documents) of Exhibit 5A (List of Initial Financing Documents).

Institutional Lender means:

(a) The United States of America, any state thereof or any agency or instrumentality of either of them, any municipal agency, public benefit corporation or public authority, advancing or insuring mortgage loans or making payments which, in any manner, assist in the financing, development, operation and maintenance of projects;

(b) Any (i) bank, trust company (whether acting individually or in a fiduciary capacity), savings and loan organization or insurance company organized and existing under the laws of the United States of America or any state thereof, (ii) foreign insurance company or bank qualified to do business as such, as applicable under the laws of the United States of America or any state thereof, or (iii) pension fund, foundation or university or college endowment fund; provided that an entity described in this clause (b) only qualifies as an Institutional Lender if it is subject to the jurisdiction of state and federal courts in the State in any actions;

(c) Any "qualified institutional buyer" under Rule 144(a) under the Securities Act of 1933, 15 U.S.C. § 77a et seq., or any other similar Law hereinafter enacted that defines a similar category of investors by substantially similar terms;

(d) Any purchaser of debt securities the proceeds of which are used to finance the Project that are not publicly offered pursuant to the exception to registration provided in Section 4(2) of the U.S. Securities Act of 1933; or

(e) Any other financial institution or entity designated by Non-Profit Entity and approved in writing by City; provided that such institution or entity, in its activity under this Agreement, is acceptable under then current guidelines and practices of City;

provided, however, that each such entity (other than entities described in clause (c) and (d) of this definition), or combination of such entities if the Institutional Lender is a combination of such entities, shall have individual or combined assets, as applicable, of not less than $1 billion. The foregoing dollar minimums shall automatically increase at the beginning of each calendar year by the percentage increase, if any, in the CPI during the immediately preceding calendar year, determined by comparing the CPI most recently published for the immediately preceding year with the CPI most recently published for the second preceding year.

Insurance Policy(ies) means all of the insurance policies Non-Profit Entity is required to carry under Exhibit 7 (Insurance Requirements).

Insurance Proceeds means all proceeds from insurance payable to Non-Profit Entity (or that would have been payable to Non-Profit Entity but for Non-Profit Entity's breach of any obligation under this Agreement to procure or maintain said insurance) on or after the Early Termination Date.

Insurance Unavailability means either:

(a) Any Insurance Policy coverage required under Section 10.1 (Insurance) or Exhibit 7 (Insurance Requirements) is deemed unavailable under Section 10.1.4 (Insurance Unavailability); or

(b) Provision of all such Insurance Policy coverages has become unavailable at Commercially Reasonable Insurance Rates from insurers meeting the requirements in Section 10.1.2.1 (Insurers).

For the purpose of clause (b), the only increases in premiums that may be considered are those caused by changes in general market conditions in the insurance industry affecting insurance for project-financed transit facilities, and Non-Profit Entity shall bear the burden of proving that premium increases are the result of such changes in general market conditions. No increase in insurance premiums attributable to particular conditions of the Project or Project Site, or to claims or loss experience of any NPE-Related Entity or Affiliate, whether under an Insurance Policy required to be placed under this Agreement or in connection with any unrelated work or activity of NPE-Related Entities or Affiliates, shall be considered in determining whether Insurance Unavailability exists or has occurred.

Intellectual Property means all current and future legal and/or equitable rights and interests, anywhere in the world, in know-how, patents (including applications), copyrights (including moral rights), trademarks (registered and unregistered), service marks, trade secrets (as defined by the Defend Trade Secrets Act § 2(b)(1) (18 USC § 1839(3)), and pursuant to US state and federal laws), designs (registered and unregistered), utility models, circuit layouts, mask works, business and domain names, inventions, solutions embodied in technology, and other intellectual activity, and applications of or for any of the foregoing, subsisting in or relating to the Work or IP Materials. Without limiting the foregoing, Intellectual Property includes Software and City Data. For the avoidance of doubt, Intellectual Property is distinguished from

the physical, electronic, and/or mechanical embodiments of such Intellectual Property (see IP Materials).

Interior OCS Work Allowance means the Allowance to be used pursuant to Section 11.12.9 (Interior OCS Work Allowance) by Non-Profit Entity for Interior OCS Work. The initial Interior OCS Work Allowance amount is identified in Section 11.12.9.

Interior OCS Work means the coordination, provision, permits, installation, and testing related to the OCS elements within the interior of the Infrastructure Facility that are required to fulfill the requirements of the Contract Documents.

IP Escrow(s) has the meaning set forth in Section 21.5.2 of this Agreement.

IP Escrow Agent has the meaning set forth in Section 21.5.2 of this Agreement.

IP Materials means all physical, electronic and/or mechanical embodiments of, and documents disclosing, Intellectual Property. Without limiting the generality of the foregoing, IP Materials include embodiments, documents, deliverables and/or Work incorporating concepts, inventions (whether or not protected under patent laws), works of authorship, information, new or useful art, combinations, discoveries, formulae, algorithms, specifications, manufacturing techniques, technical developments, systems, computer architecture, artwork, Software, Source Code, decompilation instructions, programming, applets, scripts, designs, procedures, processes, and methods of doing business, and any other media, materials, plans, reports, project plans, work plans, documentation, training materials, and other tangible objects produced under the Contract or required by, incorporated into or combined with the Work or the Project.

IT / Comms Site means those areas related to City-Furnished IT/Comms FF&E, including locations of each MDF, IDF, wireless access point, RTLS point, a 15-foot radius immediately around each of these locations, and other areas the City, acting reasonably, deems necessary and identifies for NPE at least 14 days prior to the beginning of the City Access Period.

Key Contract means any one of the following:

(a) the Project Implementation Agreement;

(b) all Prime Contracts for Construction Work and Design Work;

(c) all Prime Contracts for project or program management services; and

(d) all other Prime Contracts with a single Contractor (or a single Contractor and its affiliates) that individually or in the aggregate total in excess of $25 million on a term (not annual) basis.

The term “Key Contracts” means all such Contracts in the aggregate or more than one of such Contracts.

Key Contractor means each Contractor under any Key Contract.

Key Personnel means, collectively, those individuals: (a) in Exhibit 20 (List of Key Personnel); and (b) appointed by Non-Profit Entity and approved by City from time to time to fill the “Key

Personnel" positions identified in Section 1.1.4 of Division 1 of the Technical Requirements (each is a "**Key Person**").

Key Ratios means ratios contained in the Financing Documents that have financial covenants attached to them or ratios that are condition precedents to Financial Close under the Financing Agreements.

Known or Suspected Hazardous Materials means Hazardous Materials (i) that are known or reasonably suspected to exist as of the Setting Date based on information, data or analysis contained or referenced in the ESA; (ii) excluding Hazardous Materials that are entirely subsurface, which should have been known or reasonably suspected pursuant to a Reasonable Investigation prior to the Setting Date, including those listed in the Technical Requirements; (iii) that constitute asbestos, lead, PCBs, any byproducts of the foregoing and/or any other material or substance indicated as present or potentially present at, in, on or under the Project Site in the ESA; (iv) anticipated or likely to be present in a building or structure that was constructed in 1915 and in continuous operation as a bus maintenance facility and heavy industrial use since that time; and/or (v) excluding Hazardous Materials that are entirely subsurface, which should have been identified or referenced pursuant to a Reasonable Investigation undertaken pursuant to the Predevelopment Agreement. Known or Suspected Hazardous Materials include Hazardous Materials arising in or from any of the Hazardous Materials sites listed in the CEQA documents, the NEPA documents or in the Technical Requirements.

Late Payment Rate means the legal rate, as set forth in Section 685.010(a) of the California Code of Civil Procedure, as may be amended from time to time, up to a maximum amount equal to 10% per annum.

Law(s) means (a) any statute, law, code, regulation, ordinance, rule or common law, (b) any binding judgment (other than regarding a Claim), (c) any binding judicial or administrative writ, order, judgment, injunction, award or decree (other than regarding a Claim), (d) any written directive, guideline, policy requirement or other governmental restriction (including those resulting from the initiative or referendum process, but excluding those by City within the scope of its administration of the Contract Documents) or (e) any similar form of decision of or determination by, or any written interpretation or administration of any of the foregoing by, any Governmental Entity, in each case which is applicable to or has an impact on the Project or the Work, whether taking effect before or after the Effective Date. The term "Laws", however, excludes Regulatory Approvals.

Lead Developer means and Potrero Neighborhood Collective LLC, a limited liability company organized under the laws of the State of Delaware.

Lender(s) means each of the holders and beneficiaries of Security Documents, including any financial guarantor providing Project Debt or any guaranty or credit enhancement in respect thereof, and their respective successors, assigns, participating parties, trustees and agents, including the Collateral Agent.

Lenders' Liabilities means, at the relevant time, the aggregate of (without double counting) all principal, interest (including capitalized and default interest under the Financing Documents, but with respect to default interest, only to the extent that it arises as a result of City making any payment later than the date that it is due under this Agreement or any other default by City under this Agreement), Breakage Costs, banking fees, premiums or reimbursement obligations with respect to financial insurance policies, agent and trustee fees, costs and expenses properly

incurred owing or outstanding to the Lenders by Non-Profit Entity under or pursuant to the Financing Documents on the Early Termination Date, including any prepayment premiums or penalties, make-whole payments or other prepayment amounts, including costs of early termination of interest rate and inflation rate hedging, swap, collar or cap arrangements, that Non-Profit Entity must pay, or that may be payable or credited to Non-Profit Entity, under any Financing Agreement or Security Document or otherwise as a result of the payment, redemption or acceleration of all or any portion of the principal amount of Project Debt prior to its scheduled payment date that were determined to be reasonable by City at the time City reviewed and approved the Financing Agreements in connection with Financial Close, as evidenced by City's approval of such Financing Agreements.

Lenders' Technical Advisor (LTA) means the Lenders' technical advisor, BTY US LLC, and any replacement technical advisor engaged by Non-Profit Entity and the Lenders with respect to the Project.

Long Stop Date means 12 calendar months after the Substantial Completion Deadline, as such date may be extended from time to time pursuant to Section 14.1.2 (Extension of Deadlines for General Delay Events).

Loss(es) means, whether asserted, suffered or incurred by a Party or a Third Party, any debt, assessment, claim, action, loss, proceeding, damage, injury, liability, obligation, cost, response cost, expense (including attorneys', accountants' and expert witnesses' fees and expenses (including those incurred in connection with the enforcement of any indemnity or other provision of this Agreement), loss (whether direct or indirect), proceedings, demands and charges whether arising under statute, contract or at common law), compensation, charge or liability of any kind (including fees, judgments, or penalties), and whether or not arising under or for breach of contract, in tort (including negligence), restitution, under statute or otherwise at law. Losses include injury to or death of persons, damage or loss of property, and harm or damage to natural resources, utility facilities or Intellectual Property.

LTA Agreement means the technical advisory agreement dated as of the Financial Close Date between Non-Profit Entity, the Lenders (or the Collateral Agent) and Lenders' Technical Advisor.

Major Approval means the Regulatory Approvals issued by DBI set forth on Exhibit 21.

Major Approval Conditions to Assistance has the meaning set forth in Section 6.3.8.2.

Major Approval Deadline means, with respect to a Major Approval, the deadline for Non-Profit Entity, Principal Project Company and/or D&C Contractor to secure such Major Approval set forth on Exhibit 21.

Major Approval Delay means a Critical Path delay to the Work resulting from the failure to obtain a Major Approval by the applicable Major Approval Deadline where that delay is not due, in whole or in part, to a change to the Non-Profit Entity's design between the Effective Date and Final Design Documents (unless such design change is as a direct and sole result of a City Change or Delay Event (excluding Major Approval Delay)) or due to any act or omission of any NPE-Related Entity or any NPE Fault or failure of the Non-Profit Entity to act diligently in accordance with the requirements of the Contract Documents and Good Industry Practice (including any failure to provide City with an updated Project Schedule or to perform the Work in accordance with the Project Schedule). Subject to the terms of the Contract Documents, Major

Approval Delay shall be determined on a full day basis commencing on the Major Approval Deadline and continuing until DBI approves the applicable Major Approval.

Major Utility Adjustment means Utility Adjustments to the following Utilities:

(a) storm and sanitary sewer to be undertaken by or on behalf of the San Francisco Public Utilities Commission;

(b) water, including fire, potable, and non-potable, to be undertaken by or on behalf of the San Francisco Public Utilities Commission; and

(c) Undergrounding Existing PG&E Power Line Work.

Major Utility Adjustment Deadline means the deadline to complete each Major Utility Adjustments specified in the approved Project Schedule.

Major Utility Adjustment Delay has the meaning set forth in Section 7.6.13.1. Subject to the terms of the Contract Documents, Major Utility Adjustment Delay shall be determined on a full day basis commencing on the Major Utility Adjustment Deadline and continuing until the applicable Major Utility Adjustment is completed.

Main or Trunkline Utility means an underground Utility, which is not a Service Line, and which relative to the particular system of which it is a part, (a) is a larger line serving as a main line to connecting tributary lines and (b) serves a larger area, all as determined by City, in its sole discretion. In determining whether a facility should be considered a Main or Trunkline Utility, City may refer to definitions in the relevant manual or code, if any, of the Utility Owner.

Maintenance of Traffic (MOT) means the comprehensive effort to maintain traffic.

Manual or **Manuals** means policies, procedures, practices, guidelines, plans, checklists, deliverables, etc. that are developed, implemented and updated by Non-Profit Entity.

Milestone Payment 1 has the meaning set forth in Section 1.1 of Exhibit 4A (Milestone Payment Mechanism).

Milestone Payment 2 has the meaning set forth in Section 2.1 of Exhibit 4A (Milestone Payment Mechanism) and, collectively, means Milestone Payment 2A and Milestone Payment 2B.

Milestone Payment 2A has the meaning set forth in Section 2.2 of Exhibit 4A (Milestone Payment Mechanism).

Milestone Payment 2B has the meaning set forth in Section 2.2 of Exhibit 4A (Milestone Payment Mechanism).

Milestone Payments means, collectively, Milestone Payment 1, Milestone Payment 2, or each of them, as the context my require.

Model Update Event has the meaning set forth in Section 4.7.1.1.

Monthly Progress Meeting has the meaning set forth in Section 1.1.3.5 of Division 1 of the Technical Requirements.

Monthly Report means the report described in Section 1.2.4.1 of Division 1 of the Technical Requirements.

Move-In has the meaning set forth in Section 7.14 (Move-In).

Move-In Plan means the plan prepared and submitted by Non-Profit Entity and approved by the City in accordance with Section 6.10 of Division 6 of the Technical Requirements, as updated in accordance with this Agreement.

Move-In Resource Candidate has the meaning set forth in Section 7.14.3.1.

Move-In Resource means the advisor selected in accordance with Section 7.14.3.

Move-In Subcommittee has the meaning set forth in Section 7.14.2.1.

NEPA Approval means the Categorical Exclusion Determination issued by the Federal Transit Administration under 23 C.F.R. §771.118(c)(9), dated December 23, 2024, confirming that the Potrero Yard Modernization Project qualifies as a categorical exclusion under the National Environmental Policy Act. A copy of the determination is available on file with the SFMTA and available upon request.

NEPA Event means:

(a) any new or modified NEPA Approval necessitated solely by a City Change or a Delay Event;

(b) legal action being taken in respect of the NEPA Approval that results in a temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction that prohibits prosecution of, or by complying with such temporary restraining order, preliminary injunction or other form of interlocutory relief by a court of competent jurisdiction results in prohibiting the prosecution of, a material portion of the Work;

(c) review or revocation or material change to, the NEPA Approval; or

(d) any review or revocation of, or change to, a NEPA Approval directly resulting from the circumstances specified in clauses (b) and (c).

except, in each case, to the extent resulting, in whole or in part, from Non-Profit Entity's design, Work or from any NPE Fault.

New PG&E Service Allowance means the Allowance to be used pursuant to Section 11.12.6 (New PG&E Service Allowance) by Developer for New PG&E Service Work. The initial New PG&E Service Allowance amount is identified in Section 11.12.6.

New PG&E Service Work means the investigations, design, provision, permits, installation, and testing related to bringing a new PG&E power feed from the SF A (Potrero) substation to the Project Site as described in Appendix C and Appendix G of Division 3 of the Technical

Requirements.

Noncompliance Database has the meaning set forth in Section 15.3.1.1.

Noncompliance Event means a D&C Noncompliance Event.

Nonconforming Work means any D&C Work (including any product of the D&C Work) that does not conform to the requirements of the Contract Documents, the Regulatory Approvals, applicable Law, the Design Documents or the Construction Documents, including any Work required to be repaired or replaced under Section 7.11 (Nonconforming Work) of this Agreement.

Non-Dig Alert Utilities means Utilities that are not documented by or recorded with USA Dig Alert.

Non-Profit Entity (NPE) means PRG – Potrero Properties LLC, a limited liability company organized under the laws of the State of Delaware whose sole member is Non-Profit Parent, and its permitted successors and assigns.

Non-Profit Entity Allowances has the meaning set forth in Section 11.12.1(b).

Non-Profit Parent means Provident Resources Group Inc., a Georgia non-profit corporation and a tax-exempt entity under the Internal Revenue Code, and its successors and assigns.

Non-Regulated Load means the metered provision of Energy other than Regulated Load. Non-Regulated Loads are to be aggregated in a logical fashion through a submetering system.

Notice has the meaning given in Section 23.10 (Notices and Communications).

Notice(s) of Conditional Termination has the meaning set forth in Section 17.2.1 (Notice of Conditional Election to Terminate – Force Majeure Termination Events).

Notice of Determination has the meaning set forth in Section 15.3.3.2.

Notice of Potential Claim means a written Notice submitted by Non-Profit Entity in accordance with Section 18.2 (Notice of Potential Claim).

Notice of NPE Default means a written Notice provided by City concerning City's determination that a NPE Default has occurred, with respect to any default for which a cure period is allowed under Section 16.3.2 (Cure Periods).

NPE Change Request has the meaning set forth in Section 3.1 of Exhibit 9 (Change Procedures). For certainty, any Notice delivered by Principal Project Company or an NPE-Related Entity to City in respect of a Relevant Event is deemed not to be an NPE Change Request.

NPE Default has the meaning set forth in Section 16.1.1 (NPE Default).

NPE Employee(s) means employee(s) of Non-Profit Entity or any other NPE-Related Entity at the Project Site.

NPE Employee and Contractor Breakage Costs means:

(a) the payment of all wages earned, accrued unused vacation time, and any other payments required to be made by Non-Profit Entity to its employees under law, or under the terms and conditions of Non-Profit Entity's employment agreements with its employees as a direct result of the termination of this Agreement; and

(b) Losses that have been or will be reasonably and properly incurred by Non-Profit Entity under a Key Contract as a direct result of the termination of this Agreement (and which shall not include lost profit or lost opportunity), but only to the extent that:

(i) the Losses are incurred in connection with the Project and with respect to the Work required to be provided or carried out, including:

(1) any materials or goods ordered or subcontracts placed that cannot be cancelled without such Losses being incurred; and

(2) any expenditure incurred in anticipation of the provision of services or the completion of Work in the future; and

(3) the cost of demobilization including the cost of any relocation of equipment used in connection with the Project; and

(ii) the Losses are reasonably and properly incurred under arrangements and/or agreements that are consistent with terms that have been entered into in the ordinary course of business and on an arm's length basis; and

(iii) Non-Profit Entity and the relevant Key Contractor have each used their reasonable efforts to mitigate such Losses and, as to Principal Project Company and the Project Implementation Agreement, Principal Project Company shall have fully complied with all mitigation obligations applicable to Non-Profit Entity under this Agreement.

NPE Fault means:

(a) the breach by any NPE-Related Entity of any of its obligations or any representation, warranty or covenant under the Contract Documents;

(b) a breach of applicable Law or any Regulatory Approval by any NPE-Related Entity; and

(c) fraud, criminal conduct, intentional misconduct, recklessness, bad faith, gross negligence, negligence or other culpable act or omission of any NPE-Related Entity.

NPE Intellectual Property means Intellectual Property developed by Non-Profit Entity, Contractors, or any of their respective Affiliates either (a) prior to the Effective Date, (b) independently of the Contract Documents or (c) any adaptation, continuation or derivative work which requires the incorporation, exercise or practice of Intellectual Property that is the subject of either clause (a) or (b).

NPE Project Relief has the meaning given in Section 3.8.3.

NPE Release means, with respect to Hazardous Materials, (a) any Release of Hazardous Material, or the exacerbation of any such Release, attributable to any NPE Fault; (b) any Release of Hazardous Materials arranged to be brought onto the Project Site by any NPE-Related Entity; regardless of cause; (c) any migration of Hazardous Materials into, onto, under or from the Project Site where the source of such Hazardous Materials is a NPE-Related Entity; or (d) any use, containment, storage, management, handling, transport or disposal of any Hazardous Materials, by any NPE-Related Entity in violation of the requirements of the Contract Documents, Good Industry Practice or any applicable Law or Regulatory Approval.

NPE Resources means the employees of Non-Profit Entity or any Non-Profit Entity that are not at the Project Site.

NPE's Construction Quality Plan (PCQP) means the Non-Profit Entity deliverable described in Section 1.4.3 of Division 1 of the Technical Requirements, following approval thereof by City, as updated in accordance with this Agreement.

NPE's Design Quality Plan (PDQP) means the Non-Profit Entity deliverable described in Section 1.4.2 of Division 1 of the Technical Requirements, following approval by City, as updated in accordance with this Agreement.

NPE-Furnished FF&E means all FF&E required by the Technical Requirements or the Equipment List (including items marked CP) or otherwise required to be included on the Equipment List under Section 7.13.1 (Selection and Procurement of NPE-Furnished FF&E) including the Office/Admin and Training Spaces FF&E and the IT/Comms Equipment, but excluding City-Furnished Equipment and Existing FF&E.

NPE's Interest means all right, title and interest of Non-Profit Entity in, to, under or derived from the Contract Documents, including the Infrastructure Facility, Project Management Plan, Subcontracts, Submittals, Claims and Intellectual Property.

NPE's Quality Program (PQP) means the program described in Section 1.4.1 of Division 1 of the Technical Requirements, including all sub-plans.

NPE's Quality Program Plan (PQPP) means Non-Profit Entity's plan describing its approach to undertake and achieve the requirements in Section 1.4.1 of Division 1 of the Technical Requirements, prepared and submitted by Non-Profit Entity in accordance with Section 1.4 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

NPE PIA Default means an NPE Default, as defined and used in the Project Implementation Agreement.

NPE-Related Entity(ies) means:

(a) Principal Project Company;

(b) Principal Project Company's Equity Members, including Lead Developer;

(c) D&C Contractor;

(d) Contractors;

(e) any other persons or entities performing any of the Work;

(f) any other persons or entities for whom Non-Profit Entity may be legally or contractually responsible;

(g) any Affiliate of the Non-Profit Entity, or any other NPE-Related Entity (excluding such Affiliates to the extent that they are participating in or responsible for any aspect of the HCC); and

(h) the employees, agents, officers, directors, representatives, consultants, successors and assigns of any of the foregoing.

NTP 1 means the written Notice issued by City to Non-Profit Entity in accordance with Section 7.4.3 (Commencement of Non-Construction Work) authorizing Non-Profit Entity to proceed with non-Construction Work.

NTP 2 means the written Notice issued by City to Non-Profit Entity in accordance with Section 7.4.4 (Commencement of Construction Work) authorizing Non-Profit Entity to proceed with Construction Work.

Office/Admin and Training Spaces FF&E means all FF&E to be included in Office/Admin and Training Spaces and all additional FF&E identified as "Office/Admin and Training Spaces FF&E" in the Equipment List or otherwise required to be included in the Office/ Admin and Training Spaces under Section 7.13.1 (Selection and Procurement of NPE-Furnished FF&E).

Office/ Admin and Training Spaces means administration and training facility spaces including Office/Admin and Training Spaces FF&E, identified as “Office Modules”, “Training” and “Operations”, as well as the enclosed circulation between, as set forth in Division 3 of the Technical Requirements and relevant subsequent Design Documents.

Offsite Utility Information shall mean the results of the investigations taken pursuant to Section 7.6.16.1 in accordance with the Offsite Utility Reasonable Investigation Plan.

Offsite Utility Reasonable Investigation means the following activities by appropriate, qualified professionals:

Prior to the expiration of the 135-day period in which the Offsite Utility Information must be submitted by Non-Profit Entity to City:

(a) Visit and visual inspection of the boundaries of the Offsite Utility Work and adjacent locations, including visual inspection to identify the presence of other facilities, such as barriers, railing, structures, manholes or identifying markers;

(b) Review and analysis of all Reference Documents and online map tools;

(c) Review and analysis of the CEQA Approval, NEPA Approval and other Regulatory Approvals;

(d) Reasonable inquiry with Utility Owners, including request for and review of Utility

plans provided by Utility Owners;

(e) Review and analysis of material applicable Law applicable to the Project or the Work as of the Setting Date; and

(f) Review and analysis of information, data, analyses or reports undertaken under the Predevelopment Agreement.

Following the expiration of the 135-day period in which the Offsite Utility Information must be submitted by Non-Profit Entity to City:

(a) Visit and visual inspection of the boundaries of the Offsite Utility Work and adjacent locations, including visual inspection to identify the presence of other facilities, such as barriers, railing, structures, manholes or identifying markers;

(b) Review and analysis of all Reference Documents and online map tools;

(c) Review and analysis of the CEQA Approval, NEPA Approval and other Regulatory Approvals;

(d) Reasonable inquiry with Utility Owners, including request for and review of Utility plans provided by Utility Owners;

(e) Review and analysis of material applicable Law applicable to the Project or the Work as of the expiration of such 135-day period;

(f) Review and analysis of information, data, analyses or reports undertaken under the Predevelopment Agreement; and

(g) Review and analysis of information, data, analyses or reports undertaken within the 135-day investigations period and other activities consistent with Good Industry Practice, including all activities required by the Offsite Utility Reasonable Investigation Plan.

Offsite Utility Reasonable Investigation Plan means Non-Profit Entity's plan describing its approach to and standards for Offsite Utility Reasonable Investigations as further described in the approved Project Management Plan, as updated and approved by the City in accordance with this Agreement.

Offsite Utility Work means the design and construction necessary for a Utility Adjustment for a Utility that is entirely outside of the Project Site and includes Incidental Utility Work. Any Off-Site Utility Work furnished or performed by Non-Profit Entity is part of the D&C Work and any Offsite Utility Work furnished or performed by a Utility Owner is not part of the D&C Work.

Open Book Basis means review by City of documentation showing Non-Profit Entity's underlying assumptions, documents, information and data associated with the issue in question, including assumptions as to the Financial Model and each updated Financial Model, pricing or compensation or adjustments thereto, costs of the Work, costs or compensation claimed with respect to Model Update Events, schedule, composition of equipment spreads, equipment rates (including rental rates), labor rates and benefits, productivity, estimating factors, design and productivity allowance, contingency and indirect costs, Extra Work Costs, risk pricing, discount

rates, interest rates, inflation and deflation rates, swap and hedge rates, insurance rates, bonding rates, letter of credit fees, overhead, profit, traffic volumes and other items reasonably required by City to satisfy itself as to validity or reasonableness. Open Book Basis also includes City review of the foregoing documentation of Principal Project Company and D&C Contractor.

Opinion of Counsel has the meaning given in Section 23.16.1.

Ordinance has the meaning set forth in Recital D.

Other Amounts has the meaning given in Section 11.4.2.

Other Contractor means any contractor, tradesperson or other person engaged by City to do work other than Non-Profit Entity and its Subcontractors.

Oversight means monitoring, inspecting, sampling, measuring, spot-checking, reviewing, attending, observing, testing, investigating, auditing and conducting any other ongoing oversight respecting any part or aspect of the Project or the Work, by any Person so entitled, including all the activities described in Section 5.4.2.

Partnering Allowance means the Allowance to be used pursuant to Section 11.12.8 (Partnering Allowance) by Developer for Partnering. The initial Partnering Allowance amount is identified in Section 11.12.8.

Partnering means the partnering process as set forth in Article 18 of this Agreement.

Party means Non-Profit Entity or City, as the context may require, and "Parties" means Non-Profit Entity and City, collectively.

Payment Bond means the payment bond(s) to secure payment for labor and materials, as required under this Agreement.

Payment Commencement Date means (a) in the case of API_q and APC_{Base}, the later of (i) the date that is one day after the Substantial Completion Date, and (ii) April 1, 2031, and (b) in the case of APC_{DC}, the later of (i) the date that is one day after the Substantial Completion Deadline, and (ii) April 1, 2031.

PDA Term means the period commencing on November 2, 2022 and expiring on the Effective Date.

Performance Bond means the performance bond(s) securing performance of the Work required under this Agreement.

Performance Cure Plan means the plan prepared and submitted by Non-Profit Entity and approved by the City in accordance with Section 15.5.2(a) of the Agreement, as updated in accordance with this Agreement.

Performance Monitoring Report means a report documenting all D&C Failure Events, associated D&C Noncompliance Points and D&C Period Deductions.

Performance Notice means a written Notice provided by City, as set forth in Section 15.5.1.

Performance Notice Threshold means

(a) if Non-Profit Entity receives a total of 375 or more Noncompliance Points over the course of 3 consecutive calendar months (determined on a rolling basis); or

(b) A material D&C Noncompliance Event occurs, as determined by the City

Persistent NPE Default means if:

(a) Non-Profit Entity receives a total of 500 or more Noncompliance Points over the course of 12 consecutive calendar months (determined on a rolling basis); or

(b) Non-Profit Entity receives a total of 875 or more Noncompliance Points over the course of 36 consecutive calendar months (determined on a rolling basis);

Persistent NPE Default Cure Plan means the plan including specific actions (including timeframes) to be taken by Non-Profit Entity to improve performance, prepared and submitted by Non-Profit Entity in accordance with Section 15.8.1 of the Agreement, as updated and approved by the City in accordance with this Agreement.

Person means any individual, corporation, joint venture, limited liability company, company, voluntary association, partnership, trust, unincorporated organization or Governmental Entity.

PG&E Offsite Utility Delay has the meaning set forth in Section 7.6.17.1

Planning Department means the City's Planning Department.

PNC has the meaning set forth in Recital E.

Potential Contract Dispute has the meaning set forth in Section 18.2.1.

Predevelopment Agreement has the meaning set forth in Recital F of this Agreement.

Pre-Existing Hazardous Materials means Hazardous Materials that:

(a) are located in, on or under, or are emanating from, any parcel within the boundaries of the Project Site as of the date access to such parcel is provided to Non-Profit Entity; or

(b) existed in another location as of the date access to such a parcel was provided and thereafter migrated to such parcel,

excluding any Hazardous Materials that are located in, on or under, or are emanating from any Additional Property or Temporary Areas or which arise as a result of any act or omission of any NPE-Related Entity in connection with any Additional Property or Temporary Areas.

Prevailing Rate of Wages has the meaning given in Section 6.22(e) and 21C of the San Francisco Administrative Code.

Prime Contract means a direct Contract between Non-Profit Entity and a Contractor or Principal Project Company and a Contractor.

Prime Contractor means any Contractor that has a direct contract with Non-Profit Entity or Principal Project Company.

Principal Project Company (PPC) means Potrero Neighborhood Collective LLC, a limited liability company organized under the laws of the State of Delaware, and its permitted successors and assigns.

Principal Project Document(s) means the Contract Documents, the Project Implementation Agreement, the other Key Contracts and the escrow agreements relating to the escrow of the Financial Model and Cost and Pricing Data and the IP Escrows.

Private Use has the meaning set forth in Section 23.16.4.

Private Placement means the issuance of debt securities that are exempt from registration under U.S. securities law and are sold directly in the private market.

Prohibited Person means any Person who is:

(a) debarred, suspended, proposed for debarment with a final determination still pending, declared ineligible or voluntarily excluded from participating in procurement or nonprocurement transaction or determined to be a non-responsible bidder or contractor (as such terms are defined or used in City's Contractor Responsibility Program);

(b) indicted or convicted of a crime, including misdemeanors, or had a civil suit or administrative judgment rendered against such Person involving the bidding, awarding, or performance of a government contract, a false claim or material misrepresentation to any private or governmental entity, or the crime of theft, fraud, embezzlement, perjury, or bribery (as such terms are defined or used in City's Contractor Responsibility Program);

(c) identified on the list entitled "Entities Prohibited from Contracting with Public Entities in California per the Iran Contracting Act of 2010" maintained by the Department of General Services;

(d) a financial institution against which, or a banking institution chartered or licensed in a jurisdiction against which, the United States Secretary of the Treasury has imposed special measures under Section 311 of the USA PATRIOT Act;

(e) located within or is operating from a jurisdiction that has been designated as a "high-risk and non-cooperative jurisdiction" by the Financial Action Task Force;

(f) a "senior foreign political figure" or a prohibited "foreign shell bank" within the meaning of 31 CFR Section 1010.605; or

(g) engaged in litigation with the City of San Francisco relating to performance of a contract or business practices (unless the City has first waived (in the City's sole discretion) by written Notice to the transferring equity holder, with a copy to Non-Profit Entity, the prohibition on a transfer to such Person during the continuance of the relevant litigation).

Project means the design, construction, financing and Warranty Work of the Infrastructure Facility as described in the Contract Documents.

Project Debt means bona fide indebtedness (including subordinated indebtedness) for or with respect to funds borrowed or obligations incurred (including bona fide indebtedness with respect to any financial insurance issued for funds borrowed) or for the value of goods or services rendered or received, the repayment of which has specified payment dates and is secured by one or more Security Documents. Project Debt includes principal, capitalized interest, accrued interest, customary and reasonable lender, financial insurer, agent and trustee fees, costs, expenses and premiums with respect thereto, payment obligations under interest rate and inflation rate hedging agreements or other derivative facilities with respect thereto, reimbursement obligations with respect thereto and lease financing obligations. Project Debt excludes (a) any indebtedness of Non-Profit Parent or Non-Profit Entity that is secured by anything less than the entire Non-Profit Entity's Interest, such as indebtedness secured only by an assignment of economic interest in Non-Profit Entity or of rights to cash flow or dividends from Non-Profit Entity, (b) debt that constitutes consideration paid for the sale of the economic rights in Non-Profit Parent or Non-Profit Entity, and (c) any increase in indebtedness to the extent resulting from an agreement or other arrangement Non-Profit Entity enters into after it was aware (or should have been aware, using reasonable due diligence) of the occurrence or prospective occurrence of an event of termination giving rise to an obligation of City to pay Termination Compensation, including Non-Profit Entity's receipt of a Notice of Termination for Convenience and occurrence of a City Default of the type entitling Non-Profit Entity to terminate this Agreement. In addition, no debt shall constitute Project Debt unless and until the Collateral Agent provides City with Notice thereof and the related Financing Agreements and Security Documents in accordance with the relevant Direct Agreement.

Project Debt Competition has the meaning set forth in Section 3.4.2(d)(ii).

Project Financial Performance means the cashflows from Non-Profit Entity's operations, financing and investments, including: (a) cash revenues and expenses, (b) Project Debt drawdowns, fees, interest expense and repayments, and (c) funding and release of reserves.

Project Implementation Agreement has the meaning set forth in Recital H.

Project IP means all NPE Intellectual Property, Third Party IP and City IP incorporated into the Project, Implementation Proposal or Work.

Project Management Plan (PMP) means the D&C Management Plan.

Project Manager means the Key Person described in Section 1.1.4 of Exhibit 3 (Implementation Proposal).

Project Schedule means (i) during the period from the Effective Date until NTP2, the Initial Schedule; and (ii) from NTP2 until Final Acceptance, the CPM schedule for all D&C Work meeting the requirements of the Technical Requirements, including the requirements in Section 1.2.1 of Division 1 thereof, as approved and updated in accordance with this Agreement.

Project Site means the D&C Site.

Proposed Change Order means a Change Order proposed by City in accordance with Section 1.2 of Exhibit 9 (Change Procedures).

Proprietary Design Review has the meaning set forth by Section 1.8.5 of Division 1 of the Technical Requirements.

Protection(s) in Place means any action taken to avoid damaging a utility facility which does not involve removing or relocating that facility, including staking the location of a facility, exposing the facility, locating construction equipment so as to avoid impacts to facilities, installing steel plating or concrete slabs, encasement in concrete, temporarily de-energizing power lines, and installing physical barriers. For example, temporarily lifting power lines without cutting them would be considered a Protection in Place; whereas temporarily moving power lines to another location after cutting them would be considered a phased Utility Adjustment and not a Protection in Place. The term "Protection in Place" includes both temporary measures and permanent installations meeting the foregoing definition.

Public Outreach Plan has the meaning set forth in Section 1.15.2 of Division 1 of the Technical Requirements.

Public Records Act (PRA) means California Public Records Act, Cal. Gov't Code § 6250 et seq., as amended from time to time.

Punch List means an itemized list of D&C Work as reasonably agreed upon by Non-Profit Entity and City which remains to be completed after the Substantial Completion Date with respect to the Infrastructure Facility as a condition to Final Acceptance, and which is limited to minor incidental items of Work necessary to correct imperfections consistent with the requirements of the Contract Documents and which have no adverse effect on the safety, use or operability of the Project.

Qualified Eligible Funds has the meaning set forth in Section 23.16.4(c).

Qualified Equity has the meaning set forth in Section 23.16.4.

Quality Assurance (QA) means all planned and systematic actions by Non-Profit Entity necessary to provide confidence that QC is performed in accordance with Non-Profit Entity's Design Quality Plan and Non-Profit Entity's Construction Quality Plan, that all Work complies with the Contract Documents and that all materials incorporated in the Work, and that all equipment and all elements of the Work will perform satisfactorily for the purpose intended. QA actions include: monitoring and verification of design through auditing, spot-checking and participation in the review of the Design Documents and work plans; and monitoring and verification of construction, manufacturing/process facilities and equipment, on-site equipment and QC documentation through auditing, spot inspections and reconciliation of material acceptance and rejection based on QC testing and Verification Sampling and Testing at production sites and the Project Site. Quality Assurance also includes documentation of all QA efforts.

Quality Audit means the audits performed by Non-Profit Entity in connection with its quality audit program, as described in further detail in Section 1.4.1 of Division 1 of the Technical Requirements.

Quality Control (QC) means the total of all activities performed by Non-Profit Entity to ensure that the Work meets the requirements of the Contract Documents. For design, this includes procedures for design quality, checking, and design review including reviews for constructability, and review and approval of work plans. For construction, this includes: procedures for

materials handling and construction quality; inspection, sampling, testing and acceptance/rejection of materials, plants, production and construction; material certifications; calibration and maintenance of equipment; production process control; and monitoring of environmental compliance. Quality Control also includes documentation of all QC design and construction efforts.

Quality Program Manager has the meaning set forth in Section 1.1.4.9 of Division 1 of the Technical Requirements.

Quality Records means the documentation required to be produced and maintained by NPE-Related Entities in accordance with Non-Profit Entity's Quality Program.

Quarter means a time period comprised of three calendar consecutive calendar months.

Rating Agency(ies) means any credit rating agency registered with the Securities and Exchange Commission as a nationally recognized statistical rating organization ("**NRSRO**").

Reasonable Accuracy means with respect to the description or identification of a Utility in the Utility Information:

(a) The Utility's actual centerline location is located at or less than five feet distant from the horizontal centerline location indicated therefor in the Utility Information (without regard to vertical location);

(b) The Utility Information shows an active and existent Utility as not abandoned;

(c) The Utility Information shows a non-existent or inactive Utility as abandoned; or

(d) The Utility has an actual nominal diameter (excluding casings and any other appurtenances) greater than 12 inches, and its actual nominal diameter is either greater than or less than the diameter shown in the Utility Information by 25% or less of the diameter shown in the Utility Information.

Any other inaccuracies in the Utility Information (e.g., as to type of material or encasement status) shall have no impact on "reasonable accuracy" of its identification and shall not result in a determination that the Utility was not identified with "reasonable accuracy." If there is any discrepancy between any of the components of the Utility Information, only the most accurate information shall be relevant for purposes of determination of "reasonable accuracy."

Reasonable Investigation means the following activities by appropriate, qualified professionals:

(a) Visit and visual inspection of the Project Site and adjacent locations, including visual inspection to identify the presence of other facilities, such as barriers, railing, structures, manholes or identifying markers;

(b) Undertaking the geotechnical, Utility, Hazardous Material and other site conditions investigations, sampling, testing, analyses and assessments as required to identify conditions at a specific point or to identify where conditions change between points, and otherwise contemplated by the Predevelopment Agreement;

(c) Review and analysis of all Reference Documents and online map tools;

(d) Review and analysis of the CEQA Approval, NEPA Approval and other Regulatory Approvals;

(e) Without limiting clause (b), reasonable inquiry with Utility Owners, including request for and review of Utility plans provided by Utility Owners;

(f) Review and analysis of material applicable Law applicable to the Project or the Work as of the Setting Date; and

(g) Other activities consistent with Good Industry Practice sufficient to familiarize Non-Profit Entity and Principal Project Company with surface and subsurface conditions, including the presence of Utilities, Hazardous Materials, archeological, paleontological and cultural resources, and Threatened or Endangered Species, affecting the Project Site or surrounding locations.

Record Documents means construction drawings, specifications and related documentation furnished by Non-Profit Entity to reflect the actual conditions and location in detail of Work as constructed and installed, which may be generated initially as marked-up Release for Construction Documents, revised subsequently as-finished revised drawings and documents, and updated thereafter as required by the Technical Requirements.

Recoverable Costs means:

(a) The reasonably required costs of any assistance, action, activity or work undertaken by City which Non-Profit Entity is liable for or is obligated to reimburse City for under the terms of the Contract Documents, including the charges of third party contractors and reasonably allocated wages, salaries, compensation and overhead of City staff and employees performing such action, activity or work; plus

(b) Reasonably required out-of-pocket costs City incurs to publicly procure any such third party contractors; plus

(c) Reasonable fees and costs of attorneys (including the reasonably allocable fees and costs of the Office of the City Attorney), financial advisors, engineers, architects, insurance brokers and advisors, investigators, traffic and revenue consultants, risk management consultants, other consultants, and expert witnesses, as well as court costs and other litigation costs, in connection with any such assistance, action, activity or work, including in connection with defending claims by and resolving disputes with third party contractors; plus

(d) Interest on all the foregoing sums at the Late Payment Rate, commencing on the date due under the applicable terms of the Contract Documents and continuing until paid; plus

(e) An administrative fee of 10% of the actual aggregate costs incurred by City as described in clauses (a) through (d) of this definition.

Recovery Schedule has the meaning set forth in Section 1.2.1.5 of Division 1 of the Technical Requirements.

Rectification means resolving and curing the D&C Failure Event in a way that Non-Profit Entity is in full compliance with this Agreement with respect to that D&C Failure Event.

Rectification Time means, with respect to a D&C Failure Event, the relevant period within which Non-Profit Entity shall Rectify such failure as specified in Appendix A (D&C Noncompliance Points and D&C Period Deductions) of Exhibit 4A (Milestone Payment Mechanism).

Reference Documents means the documents provided (i) with and so designated by City in the RFP or (ii) in writing during the PDA Term, which are provided for disclosure purposes only and without any warranty as to their accuracy, completeness or fitness for any particular purpose.

Refinancing means:

(a) any amendment, variation, novation, extension, renewal, supplement, refunding, defeasance or replacement of any Project Debt, Financing Agreement or Security Document;

(b) any Project Debt incurred by Non-Profit Entity in addition to the Initial Project Debt, secured or unsecured;

(c) the disposition of any rights or interests in, or the creation of any rights of participation with respect to, Project Debt, Financing Agreements and Security Documents or the creation or granting by Non-Profit Entity or any Lender of any other form of benefit or interest in either Project Debt, Financing Agreements and Security Documents or Non-Profit Entity's Interest whether by way of security or otherwise; or

(d) any other arrangement put in place by Non-Profit Entity or another Person which has an effect similar to any of clauses (a) through (c) above.

Refinancing Data means the Financial Model before and after any refinancing any interim Financial Models, and all assumptions, calculations and other information supporting the calculation of the Refinancing Gain, including any debt term sheets or other similar documentation relating to the proposed Refinancing.

Refinancing Gain means an amount equal to the full positive financial and monetary benefits realized through a Refinancing, including any savings or profit arising out of the Refinancing. The Refinancing Gain may arise from lower interest rates, extended maturities, accelerated or reduced payments, improved cash flows or other additive, positive or beneficial terms of the Refinancing as allowed under the Financing Documents

Regulated Load means the metered provision of Energy for the following end-uses: (i) space heating; (ii) humidification; (iii) space cooling; (iv) dehumidification; (v) heat rejection; (vi) all fans; (vii) lighting; (viii) domestic hot water; and (ix) all pumps except for any domestic water booster pumps and any process-related pumps.

Regulatory Approvals means all permits, licenses, consents, concessions, grants, franchises, authorizations, waivers, variances or other approvals, guidance, protocol(s), mitigation agreement(s), or memoranda of agreement/understanding, and any amendment(s) or modification(s) of any of them, required or provided by Governmental Entities, including State, local, or federal regulatory agencies, agents, or employees, which authorize or pertain to the Project or the Work or take actions required to complete obligations in connection with this Agreement. Regulatory Approvals include encroachment permits and other access rights or right of entries for Work to be performed in areas under the jurisdiction of Governmental Entities, Major Approvals and Environmental Approvals.

Regulatory Approvals Plan means Non-Profit Entity's plan defining its approach to obtain all Regulatory Approvals, prepared and submitted by Non-Profit Entity in accordance with Section 1.1.6 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Related Project(s) has the meaning set forth in Section 1.14.2 of Division 1 of the Technical Requirements.

Release or **Release of Hazardous Materials** means, with respect to Hazardous Materials, any spill, leak, emission, release, discharge, injection, escape, leaching, dumping or disposal of Hazardous Materials into the soil, air, water, groundwater or environment, including any exacerbation of an existing release or condition of Hazardous Materials contamination.

Release for Construction Documents (RFCD) means Design Documents that have been authorized to be used as the basis for Construction Work or Renewal Work, in accordance with the design management portion of the approved Project Management Plan, and as set forth in Section 1.8.6 of Division 1 of the Technical Requirements.

Relevant Event has the meaning set forth in Section 13.3.1.

Relevant Change in Law means a discriminatory Change in Law which is principally borne by Non-Profit Entity (including NPE-Related Entities) and principally directed at, affects or relates only to the design, supply or construction (including installation) of the Infrastructure Facility:

(a) Except where such change (i) is in response, in whole or in part, to any NPE Fault, or (ii) is otherwise expressly permitted under the Contract Documents; or

(b) Where such Change in Law is a Change in Law for which compliance requires material capital expenditures by Non-Profit Entity.

As used in this definition of "Relevant Change in Law", material capital expenditures are capital expenditures in excess of $25,000 per event, such threshold to be index-linked and increased by the Escalation Factor calculated in accordance with Section 4 of Exhibit 4B (Availability Payment Mechanism).

Request for Change Proposal means a written Notice issued by City to Non-Profit Entity setting forth a proposed City Change and requesting Non-Profit Entity's assessment of cost and schedule impacts thereof, as described in Section 1.1 of Exhibit 9 (Change Procedures).

Request for Proposals (RFP) means the request for proposals to design, build, finance, and maintain the Infrastructure Facility and design, build, finance, operate and maintain the Housing and Commercial Component at the Project Site, issued by City on April 9, 2021, as amended.

Request for Qualifications (RFQ) means the request for qualifications to invite interested parties to submit a statement of qualifications to design, build, finance and maintain the Infrastructure Facility at the Project Site and design, build, finance, operate and maintain the Housing and Commercial Component at the Project Site, issued by City on August 21, 2020 as amended.

Rescue Refinancing means any Refinancing that:

(a) occurs due to the failure or imminent failure of Non-Profit Entity to comply with any material financial obligation under any Financing Document;

(b) results in the cure of such failure or imminent failure; and

(c) does not result, singly or in the aggregate, in an actual or potential increase of the Lenders' Liabilities (determined without including any Exempt Refinancings) by more than 10%.

Retaining Wall means a wall structure which retains fill with a minimum exposed face height of 4 feet and a minimum overall height from top of footing to top of wall of 5 feet.

Revenue Account means a deposit account with the Collateral Agent, bearing U.S. Bank Trust Company, National Association Account No._____ ***To be completed at Financial Close***].

Revised Project Schedule has the meaning set forth in Section 1.2.1.4 of Division 1 of the Technical Requirements.

Room Data Sheet means a sheet or document that summarizes the requirements for each room in the Infrastructure Facility. It should include the room name, number, location, and the relevant prescriptive criteria and performance criteria from the Technical Requirements including for finishes, fixtures and fittings such as furniture and storage, mechanical and electrical requirements, acoustic and lighting performance, and IT Comms and audio-visual requirements.

Safety Compliance means any and all improvements, repair, reconstruction, rehabilitation, restoration, renewal, replacement, changes in configuration, or procedures implemented to correct a specific safety condition or risk that City has reasonably determined to exist by investigation or analysis (excluding a safety condition or risk that exists by reason of Non-Profit Entity's failure to comply with the requirements of the Contract Documents).

Safety Compliance Order means a written order or directive from City to Non-Profit Entity to implement Safety Compliance.

Safety Orientation Program means Non-Profit Entity's detailed plan for the safety orientation of employees and visitors, as more particularly described in Section 01 35 45 of Division 10 of the Technical Requirements.

Safety Standards means those provisions of the Technical Requirements that relate to Project safety, including Section 01 35 45 (Health and Safety Criteria) of Division 10 of the Technical Requirements. Safety Standards are considered to be important measures to protect public safety, worker safety or the safety of property.

Scheduled Financial Close Date has the meaning set forth in Section 3.1.2 (Date of Financial Close).

Security Document means any mortgage, deed of trust, pledge, lien, indenture, trust agreement, hypothecation, assignment, collateral assignment, account control agreement, financing statement under the enacted Uniform Commercial Code of any jurisdiction, security instrument or other charge or encumbrance of any kind, including any lease in the nature of a security instrument, given to any Lender as security for Project Debt or Non-Profit Entity's obligations pertaining to Project Debt and encumbering Non-Profit Entity's Interest.

Senior Debt Service Amount means the debt service payments that are senior to all other debt obligations in the cash flow waterfall.

Service Line(s) means a utility line, the function of which is to connect directly the improvements on an individual property (e.g., a commercial building or an industrial warehouse) to another utility line located off such property, which other utility line connects more than one such individual line to a larger system, as well as any cable or conduit that supplies an active feed from a Utility Owner's facilities to activate or energize a Governmental Entity's local lighting and electrical systems, traffic control systems, street lights, communications systems and/or irrigation systems.

Setting Date means November 17, 2025.

SFMTA Board means the San Francisco Municipal Transportation Agency Board of Directors.

Site Security Plan (SSP) means Non-Profit Entity's plan defining its oversight management program, team organization, and operating strategy to provide and maintain work site security, prepared and submitted by Non-Profit Entity in accordance with Section 1.11.2.2 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

SOFR with respect to any US banking day means a rate per annum equal to the secured overnight financing rate published for such US banking day by the Federal Reserve Bank of New York, on the Federal Reserve Bank of New York's Website. The calculation of SOFR with respect to a loan that bears interest at a rate based on SOFR shall be the rate for the one/three/six calendar months period on the date of determination published by the SOFR Administrator; provided, however, that if as of 5:00 p.m. (New York City time) on any date of determination the SOFR rate for the applicable tenor has not been published by the SOFR Administrator, then the SOFR rate will be the SOFR rate for such tenor as published by the SOFR Administrator on the first preceding day.

SOFR Administrator means the CME Group Benchmark Administration Limited (CBA) (or a successor administrator of the SOFR rate as determined by the City, in its reasonable discretion.

Software means individually each, and collectively all, of the computer programs developed or provided by Non-Profit Entity, and any NPE-Related Entity, under this Agreement (including Developed IP, Non-Profit Entity IP and/or Third-Party IP), including as to each such program, the processes, and routines used in the processing of data, the object code, interfaces to be provided hereunder by NPE-Related Entity, updates, upgrades, and any and all programs otherwise provided by NPE-Related Entity under this Agreement.

Source Code means the version of a Software computer program in which the programmer's original programming statements are expressed in any programming language.

Source Code Documentation means (a) software written in programming languages, such as C and Fortran, including all comments and procedural code, such as job control language statements, which shall be in a form intelligible to trained programmers and capable of being translated into object or machine readable code for operation on computer equipment through assembly or compiling, and (b) documentation, including flow charts, schematics, statements of principles of operations, architectural standards, and commentary, explanations and instructions for compiling, describing the data flows, data structures, and control logic of the software in sufficient detail to enable a trained programmer through study of such documentation to maintain and/or modify the software without undue experimentation. Source Code and Source Code Documentation also include all modifications, revisions, additions, substitutions, replacements, updates, upgrades and corrections made to the foregoing items.

Source of Supply Certificate of Compliance has the meaning set forth in Section 1.4.3.3 of Division 1 of the Technical Requirements.

Special Tools means (a) specialized tools necessary for maintenance or repair of Project elements or equipment (including vehicles), and (b) other tools obtained or developed by Non-Profit Entity or any Contractor for use in performance of the Work. The term excludes tools used in performance of the Work that were not procured for the Project or developed for use on the Project and that were acquired by Non-Profit Entity or Contractor at its own expense for use on multiple projects. The term “tool” as used in the Contract Documents includes “special tools.”

Standards and Specifications means the standards, specifications and other documents referenced in the Technical Requirements.

State means the State of California.

Statement of Qualification (SOQ) means Non-Profit Entity’s Statement of Qualification, provided in response to the Request for Qualifications.

Step-in Party means (a) the Collateral Agent, a Lender or any entity that is wholly owned by a Lender or group of Lenders, or (b) any Person approved by City as a Substituted Entity; in each case where such Person is not a Prohibited Person.

Structure means, as the context may require, bridges, Culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, end walls, buildings, sewers, service pipes, under drains, foundation drains, steps, fences and other features which may be encountered in the Work and not otherwise classified.

Subcontract means each Contract with a Subcontractor.

Subcontractor means each Contractor that is not a Prime Contractor.

Submittal(s) means, generally, any document, work product or other written or electronic end-product, report or item required to be delivered or submitted to City, Third Parties, or Governmental Entities in connection with this Agreement or the Project.

Submittal Schedule has the meaning set forth in Section 1.2.1.7 of Division 1 of the Technical Requirements.

Substantial Completion means that all D&C Work is complete (except for Punch List items that do not affect normal and safe use and operation of the Infrastructure Facility and any D&C Work that, by its nature, is to be performed after the Substantial Completion Date), and all other prerequisites for Substantial Completion have been met. Substantial Completion is deemed to have occurred upon satisfaction of all the conditions for the Project in Exhibit 15C (Conditions to Substantial Completion), as confirmed by City's issuance of a Certificate of Substantial Completion in accordance with the procedures and within the time frame established in Section 7.8 (Substantial Completion).

Substantial Completion Date means the date City issues a Certificate of Substantial Completion for the Project in accordance with the terms of this Agreement, including Section 7.8.1.7.

Substantial Completion Deadline means June 26, 2030, as such date may be extended from time to time pursuant to Section 14.1.2 (Extension of Deadlines for General Delay Events). **[Note: Final date to be adjusted based on Commercial Close Date]**

Substantial Completion Development Fee has the meaning set forth in Section 2A. of Exhibit 4A (Milestone Payment Mechanism).

Substitute Tariff Material means a material or product that: (a) is functionally and technically equivalent to the originally specified Tariff Material, (b) is compliant with applicable Governmental Rules, Regulatory Approvals and the requirements of the Contract, (c) can be procured within the necessary timeframes to avoid delay to the Critical Path, and (d) is manufactured in a country not subject to the applicable Tariff Event, including a country subject to a smaller tariff.

Substituted Entity means a Third Party proposed by the Collateral Agent and approved by City under a Direct Agreement to act in Non-Profit Entity's stead and not merely as a Step-in Party, in each case where such Person is (a) a Suitable Substitute and (b) not a Prohibited Person; provided, however, that such Person's assumption of Non-Profit Entity's rights and obligations under this Agreement would not adversely affect the tax-exempt status of interest on any tax-exempt financing issued with respect to the Project then outstanding; provided, further, that no such Person shall be a Substituted Entity unless an opinion of nationally recognized bond counsel shall have been delivered to the effect that the assumption by such Person of the Non-Profit Entity's rights and obligations under this Agreement would not adversely affect the tax-exempt status of interest on any tax-exempt financing issued with respect to the Project then outstanding.

Suitable Substitute means a Person, approved in writing by City in accordance with the Direct Agreement that:

(a) has the legal capacity, power and authority to become the party to and perform the obligations of Non-Profit Entity under this Agreement;

(b) is in compliance with City's rules and regulations, and has adopted written policies regarding organizational conflicts of interest consistent with City's conflicts of interest policy;

(c) has ensured that all of its subcontractors are in compliance with City's rules and regulations;

(d) has adopted written policies regarding organizational conflicts of interest consistent with City's conflicts of interest policy;

(e) employs individuals having the appropriate qualifications, experience and technical competence to timely perform Non-Profit Entity's obligations under the Contract Documents and the Principal Project Documents; and

(f) otherwise has available resources (including committed financial resources and subcontracts) sufficient to enable it to perform the obligations of Non-Profit Entity under the Contract Documents and the Principal Project Documents.

Superfund Site means a site listed on either the National Priorities List or the Proposed National Priorities List at https://www.epa.gov/superfund/superfund-national-priorities-list-npl.

Supplier means any Person not performing work at or on the Project Site that supplies machinery, equipment, materials, hardware, software, systems or any other appurtenance to the Project to Non-Profit Entity or to any Contractor in connection with the performance of the Work. Persons that merely transport, pick up, deliver or carry materials, personnel, parts or equipment or any other items or persons to or from the Project Site shall not be deemed to be performing Work at the Project Site.

Surety(ies) means each properly licensed surety company, insurance company or other Person approved by City, which has issued a Payment Bond or a Performance Bond.

Sustainability Management Plan means Non-Profit Entity's plan describing its approaches to ensure achievement of the sustainability requirements of the Contract Documents, prepared and submitted by Non-Profit Entity in accordance with Section 1.9.1 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Systems Manual has the meaning set forth in Section 6.7.4.1 (Systems Manual) of Division 6 of the Technical Requirements.

Tariff Event means (i) implementation, taking effect between the Setting Date and the Tariff Material Buyout Date, of a new federal tariff or duty on the importation of a Tariff Material; or (ii) modification or elimination, taking effect between the Setting Date and the Tariff Exposure Date, of an existing federal tariff on the importation of a Tariff Material. A federal tariff or duty that is in effect as of the Setting Date shall not be considered a Tariff Event unless it is later modified or eliminated.

Tariff Event Compensation Amount means for any Tariff Material, 95% the difference between the amount bid for the Tariff Material in the Implementation Proposal Final Price, on a unit price basis, and the documented out-of-pocket amount actually paid for the Tariff Material on a unit price basis, provided, however, that in no event shall the Tariff Event Compensation Amount exceed an amount equal to the quantity (units) of the Tariff Material multiplied by the unit price difference (on a plus or minus percentage basis) determined by comparing the Tariff Index in effect as of the Setting Date and the Tariff Index in effect as of the Tariff Material Buyout Date. The Tariff Event Compensation Amount may be (i) positive, if the Tariff Index has increased, meaning that Non-Profit Entity is entitled to additional compensation in such amount, or (ii) negative, if the Tariff Index has decreased, meaning that City shall be entitled to deduct such amount from Milestone Payment 2, or other amounts payable to Non-Profit Entity on or before the Substantial Completion Date.

Tariff Exposure Date means the following dates for the following materials:

Tariff Material	Tariff Exposure Date
Cement	9/9/2026
Rebar	11/9/2026
Structural steel	12/7/2027
Lumber	10/7/2027
Drywall	10/9/2026
Insulation	10/9/2026
Curtain wall and glazing	3/9/2027
Windows	3/9/2027
Elevators and specialty equipment	12/13/2027
Plumbing pipe and fittings	6/9/2027
Mechanical equipment and ductwork	6/9/2027
Electrical wiring, panels, and fixtures	6/9/2027

Tariff Index means the monthly Producer Price Index for Construction Materials report published by the U.S. Bureau of Labor Statistics.

Tariff Material means the imported materials and supplies set forth in the definition of "Tariff Exposure Date".

Tariff Material Buyout Date has the meaning set forth in Section 14.1.10.2 .

Tax-Exempt Bonds means has the meaning set forth in Section 23.16.4(c).

Taxes means federal, State, local or foreign income, margin, gross receipts, sales, use, excise, transfer, consumer, license, payroll, employment, severance, stamp, business, occupation, premium, windfall profits, environmental (including taxes under Section 59A of the Internal Revenue Code of 1986, as amended), customs, permit, capital stock, franchise, profits, withholding, social security (or similar), unemployment, disability, real property, personal property, registration, value added, alternative or add-on minimum, estimated or other taxes, levies, imposts, duties, fees or charges imposed, levied, collected, withheld or assessed at any time, whether direct or indirect, relating to, or incurred in connection with, the Project, the performance of the Work, revenues or act, business, status or transaction of Non-Profit Entity, including any interest, penalty or addition to such amounts, and including utility rates or rents, in all cases whether disputed or undisputed.

Technical Requirements means Exhibit 18 (Technical Requirements).

Technology Enhancements means modifications, additions, refinements, substitutions, revisions, replacements and upgrades made to Intellectual Property, equipment, mechanism, operational technology, or to any related documentation, that accomplish incidental, performance, structural, or functional improvements. Technology Enhancements specifically includes modifications, updates, or revisions made to software or any related documentation that correct errors or support new models of input-output devices with which the software is designed to operate.

Temporary Areas means areas outside of the Project Site where activities incidental to construction of the Project are being performed by Contractors, including field office sites, storage sites, staging areas dedicated to the Project, temporary work areas and parking areas, but excluding any permanent locations of Non-Profit Entity or any Contractor.

Temporary Relocation means any (a) interim relocation of any Utility (i.e., the installation, removal and disposal of an interim facility) pending installation of a permanent facility in the same or a new location, and (b) removal and reinstallation of the Utility in the same place without an interim relocation.

Temporary Work means any temporary works and structures necessary for the construction of permanent improvements. This includes falsework, formwork, scaffolding, shoring, temporary earthworks, sheeting, cofferdams, special erection equipment and the like.

Term means the period commencing on the Effective Date and ending on the date specified in Section 2.3 (Term).

Termination Compensation means the measure of compensation owing from City to Non-Profit Entity upon termination of this Agreement prior to the stated expiration of the Term, as determined in accordance with this Agreement.

Termination Date means (a) the date 30 years after the Substantial Completion Deadline, or (b) if applicable, the Early Termination Date.

Termination Due to Court Ruling has the meaning set forth in Section 17.4.3 (Termination Due to Court Ruling).

Termination for Convenience has the meaning set forth in Section 17.1.1 (Termination for Convenience).

Test Procedures means a description of a test to be performed. Test Procedures shall describe the test configuration, the test equipment required, the personnel required to perform the test, all construction and testing pre-requisites that must be completed before the test can be performed, lists each individual step to be followed in the test, expected result of each step, and the pass/fail criteria for each step, and shall include a Test Report form on which the results of the test shall be recorded.

Test Report means a form that lists each step to be performed in a test. Each Test Report shall identify the expected results of each step, a location to enter the actual results of each step, a place for the person responsible for performing the test to sign and date the form, and a place for any witnesses of the test to sign and date the form.

Three-week Look-ahead Activity Reports has the meaning set forth in Section 1.2.1.8 of Division 1 of the Technical Requirements.

Third Party(ies) means any person or entity unrelated to City or Non-Profit Entity. Third Parties expressly excludes any NPE-Related Entities.

Third Party IP means Intellectual Property owned by any Person unrelated to the Non-Profit Entity, any Contractor, or any of their respective Affiliates.

Third Party and Utility Owner Coordination Work Plans has the meaning set forth in Section 1.13 of Division 1 of the Technical Requirements.

Threatened or Endangered Species means any species listed by the United States Fish and Wildlife Service as threatened or endangered under the Endangered Species Act, as amended, 16 U.S.C. § 1531 et seq., or any species listed as threatened or endangered under the California Endangered Species Act, Fish and Game Code § 2050 et seq.

Traffic Control Plan(s) (TCP) means the site-specific design plan that provides necessary details to control traffic through and around the work area.

Trainee Plan means the plan prepared and submitted by Non-Profit Entity and approved by the City to implement the SFMTA Trainee Program.

Transaction has the meaning set forth in Section 20.2.1.

Transportation Management Plan means Non-Profit Entity's plan describing how safe traffic operations will be managed and maintained during each phase of construction and in every work zone of the Project, prepared and submitted by Non-Profit Entity in accordance with Section 1.11.3.1 of Division 1 of the Technical Requirements, as updated and approved by the City in accordance with this Agreement.

Utility Easement means a permanent replacement easement and/or other interest in real property (excluding a franchise) located outside of the Project Site that is necessary for a Utility Adjustment.

Unavoidable Delay Event means any of the following events or circumstances that occurs prior to the Final Acceptance Date and directly impacts the D&C Work:

(a) a Force Majeure Event; or

(b) an Adverse Weather Event; or

(c) an AQI Event.

Unidentified Early Offsite Utility Delay means prior to the expiration of the 135-day Offsite Utility Information investigation period, during performance of the Work (excluding Offsite Utility Work), Non-Profit Entity encounters any Non-Dig Alert Utilities located outside of the Project Site that requires Extra Work for the Offsite Utility Work and causes a Critical Path delay, and such Utility is (i) an Unidentified Offsite Utility; and (ii) not identified or reflected in whole or in part in the Utility Information.

Undergrounding Existing PG&E Power Lines Allowance means the Allowance to be used pursuant to Section 11.12.5 (Underground Existing PG&E Allowance) by Developer for Underground Existing PG&E Work. The initial Underground Existing PG&E Allowance amount is identified in Section 11.12.5.

Undergrounding Existing PG&E Power Line Work means the investigations, design, provision, permits, installation, and testing related to the undergrounding of existing PG&E power poles and lines ("Rule 20 work") that immediately surround the Project Site.

Unidentified Late Offsite Utility Delay means after the 135-day Offsite Utility Information investigations period, during performance of Construction Work, Non-Profit Entity encounters any Non-Dig Alert Utilities located outside of the Project Site that requires Extra Work for the Offsite Utility Work and causes Critical Path delay, and such Utility is (i) an Unidentified Offsite Utility; and (ii) not identified or reflected in whole or in part in the Utility Information or the Offsite Utility Information.

Unidentified Offsite Utility means:

(a) prior to the expiration of the 135-day period in which the Offsite Utility Information must be submitted by Non-Profit Entity to City, a subsurface Active Service Line or subsurface Main or Trunkline Utility located entirely outside of the Project Site, (i) where the Offsite Utility Work could not have been reasonably inferred as of the Setting Date based on an Offsite Utility Reasonable Investigation; (ii) where the Utility Information does not identify the subject Active Service Line or Main or Trunkline Utility with Reasonable Accuracy and such information could not have been reasonably inferred as of the Setting Date based on an Offsite Utility Reasonable Investigation; (iii) where such Active Service Line or Main or Trunkline Utility is not identified or referenced in any of the information, data, analyses or reports undertaken pursuant to the Predevelopment Agreement; and (iv) where such Active Service Line or Main or Trunkline Utility should not have been identified or referenced pursuant to an Offsite Utility Reasonable Investigation; and

(b) after the expiration of the 135-day period in which the Offsite Utility Information must be submitted by Non-Profit Entity to City, a subsurface Active Service Line or subsurface Main or Trunkline Utility located entirely outside of the Project Site, (i) where the Utility Information incorrectly indicates that the subject Active Service Line or Main or Trunkline Utility does not exist anywhere within the boundary lines of the Project Site and the Offsite Utility Work and which Active Service Line or Main or Trunkline Utility could not have been reasonably inferred as of the expiration of such 135-day period based on an Offsite Utility Reasonable Investigation; (ii) where the Utility Information or Offsite Utility Information does not identify the subject Active Service Line or Main or Trunkline Utility within the boundary lines of the Project Site with Reasonable Accuracy and such information could not have been reasonably inferred as of the expiration of such 135-day period based on an Offsite Utility Reasonable Investigation; (iii) where such Active Service Line or Main or Trunkline Utility is not identified or referenced in any of the information, data, analyses or reports undertaken pursuant to the Predevelopment Agreement; and (iv) where such Active Service Line or Main or Trunkline Utility should not have been identified or referenced pursuant to an Offsite Utility Reasonable Investigation.

Unidentified Utility means a subsurface Active Service Line or subsurface Main or Trunkline Utility, (i) where the Utility Information incorrectly indicates that the subject Active Service Line or Main or Trunkline Utility does not exist anywhere within the boundary lines of the Project Site and which Active Service Line or Main or Trunkline Utility could not have been reasonably inferred as of the Setting Date based on a Reasonable Investigation; (ii) where the Utility Information does not identify the subject Active Service Line or Main or Trunkline Utility within the boundary lines of the Project Site with Reasonable Accuracy and such information could not have been reasonably inferred as of the Setting Date based on a Reasonable Investigation; (iii) where such Active Service Line or Main or Trunkline Utility is not identified or referenced in any of the information, data, analyses or reports undertaken pursuant to the Predevelopment Agreement; and (iv) where such Active Service Line or Main or Trunkline Utility should have been identified or referenced pursuant to a Reasonable Investigation undertaken pursuant to the Predevelopment Agreement. Unidentified Utilities specifically exclude any Utility that serves the Project Site as of the Setting Date and which is to be de-energized or de-activated and removed as part of the Project.

Unilateral Change Order has the meaning set forth in Section 2 (Unilateral Change Orders) of Exhibit 9 (Change Procedures).

Uninterruptible Power Supply (UPS) has the meaning set forth in Section 3.12.12 of Division 3 of the Technical Requirements.

Unsafe Condition means a condition that (a) gives rise to the imminent possibility of serious injury to workers or the public or of serious damage to property or the environment, or (b) affects safe movement.

Utility(ies) or utility(ies) means a privately, publicly or cooperatively owned facility (which term includes lines, systems and other facilities, and includes municipal and/or government facilities) for transmitting or distributing communications, cable television, power, electricity, gas, oil, crude products, water, steam, waste, or any other similar commodity, including any fire or police signal system as well as streetlights associated with roadways owned by local agencies. However, when used in the context of Utility Adjustments of facilities to accommodate the Project, the term "Utility" or "utility" excludes traffic signals, ramp metering systems, flashing beacon systems, and lighting systems for roads adjacent to the Project. Necessary appurtenances to each utility facility (including the utility source, guide poles, Service Lines, supports, etc.) shall be considered part of the facility. Without limitation, any service lateral connecting directly to a utility shall be considered an appurtenance to that utility, regardless of the ownership of such service lateral.

Utility Adjustment means each relocation (temporary or permanent), abandonment, Protection in Place, removal (of previously abandoned utility facilities as well as newly-abandoned facilities), replacement, reinstallation, and/or modification of existing Utilities necessary to accommodate the Project or the Work. For any utility crossing the Project Site or public right of way, the Utility Work for each crossing of the Project Site or public right of way, as applicable, by that utility shall be considered a separate Utility Adjustment. For any utility installed longitudinally within the Project Site or the public right of way, the Utility Work for each continuous segment of that utility located within the Project Site or public right of way, as applicable, shall be considered a separate Utility Adjustment.

Utility Betterment means any upgrading of a Utility that is not attributable to the construction of the Project and is made during the course of a Utility Adjustment solely for the benefit of and at

the election of the Utility Owner, including an increase in the capacity, capability, efficiency or function of the facility over that which was provided by the existing Utility. The following are not considered Utility Betterments:

(a) any upgrading required for accommodation of the Project;

(b) any upgrading required under the Contract Documents;

(c) replacement devices or materials that are of equivalent standards although not identical;

(d) replacement of devices or materials no longer regularly manufactured with an equivalent or next higher grade or size;

(e) any upgrading required by applicable Law;

(f) replacement devices or materials that are used for reasons of economy (e.g., non-stocked items may be uneconomical to purchase); and

(g) any upgrading required by the Utility Owner's applicable Utility Standards.

Utility Information means as-built drawings, existing facility drawings, or other documentation of existing underground Utilities within the Project Site available to Non-Profit Entity (exercising Good Industry Practice) or generated by any NPE-Related Entity. Utility Information includes the Utility conflict matrix and subsurface utility engineering investigations undertaken by or on behalf of Non-Profit Entity during the PDA Term.

Utility Owner means the owner or operator of any Utility (including both privately held and publicly held entities, cooperative utilities, and municipalities and other governmental agencies), including City acting by and through the San Francisco Public Utilities Commission (it being understood that the San Francisco Public Utilities Commission is not the "City" for other purposes under this Agreement)).

Utility Standards means the standard specifications, standards of practice, and construction methods that a Utility Owner customarily applies to facilities (comparable to those being adjusted on account of the Project) constructed by the Utility Owner (or for the Utility Owner by its contractors), at its own expense. Except as may be specifically identified in the Technical Requirements, "Utility Standards" are not "Standards and Specifications."

Utility Work means the design and construction necessary for a Utility Adjustment and includes Incidental Utility Work. Any Utility Work furnished or performed by Non-Profit Entity is part of the D&C Work; and any Utility Work furnished or performed by a Utility Owner is not part of the D&C Work. Utility Work expressly includes Utility Adjustments of PG&E's power lines and poles that impact the Project.

Verification Sampling and Testing means sampling and testing performed to validate the quality of the product. City, or its designee, will perform Verification Sampling and Testing as part of its QA Oversight efforts.

Warning Notice has the meaning set forth in Section 16.1.3.1.

Weather Data means a record of annual hourly data for dry and wet bulb temperature, dew point, relative humidity, total horizontal solar radiation, wind speed and direction and atmospheric pressure at the Weather Monitoring Station.

Weather Monitoring Station means the closest National Weather Service weather monitoring station to the Infrastructure Facility.

Warranty Work means all work necessary to correct (i) a Defect or (ii) Nonconforming Work discovered during the Warranty Period, including repair or replacement of the defective, nonconforming and/or non-compliant D&C Work and any adjacent D&C Work that may have been damaged or displaced in the course of such work.

Work means all of the work, services and obligations required to be furnished, performed and provided by Non-Profit Entity under the Contract Documents, including activities to obtain financing as well as all administrative, design, engineering, construction, demolition, Utility Adjustments, Utility Work, Work covered by an Allowance, payment to Third Parties, support services, financing services, Warranty Work and management services. The term does not include any efforts which the Contract Documents expressly specify will be performed by Persons other than NPE-Related Entities.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

APPROVED AS TO FORM

David Chiu, City Attorney

By:_____

Isidro Jimenez
Deputy City Attorney

Date:_____

CITY AND COUNTY OF SAN FRANCISCO, a municipal corporation, operating by and through the San Francisco Municipal Transportation Agency

By:_____

Julie Kirschbaum
Director of Transportation

Date:_____

APPROVED BY:

San Francisco Municipal Transportation Agency
Board of Directors
Resolution No: _____
Adopted: _____
Attest:

_____
Secretary, SFMTA Board of Directors

PRG – POTRERO PROPERTIES LLC

a Delaware limited liability company

Provident Resources Group Inc.,
a Georgia non-profit corporation,
its sole member

By:_____

Chris Hicks
President and Chief Executive Officer

Potrero Neighborhood Collective
555 W. 5th Street, Suite 3150
Los Angeles, CA 90013
Telephone: 424.278.2173
Facsimile: 424.278.2174
www.plenarygroup.com

February 18, 2026

Chris Lazaro
Project Director
San Francisco Municipal Transportation Agency
Section Director, Development
Assistant Program Manager, BUILDING PROGRESS

Dear Mr. Lazaro:

Final Fixed Price Proposal – PNC Proposal Submittal Letter

Potrero Neighborhood Collective LLC ("**PNC**") is pleased to submit its Final Fixed Price Proposal ("**FFP Proposal**") to SFMTA for the Potrero Yard Modernization Project ("**Project**"). This FFP Proposal contains the following items:

- Part A. Administrative Proposal
- Part B. Technical Proposal
- Part C. FFP Proposal

We look forward to continuing to work with SFMTA in the next phase of the Project.

Kind regards,



Signature:
Name: Chris Jauregui
Title: Project Manager
Potrero Neighborhood Collective LLC

Financial Model:

Refer to *PNC IF Financial Model 2.19.2026.xlsm* located in Escrow of Financial Model and Cost and Pricing Data.



A.
Proposal Letter

PICTURED: THE ZUCKERBERG SAN FRANCISCO GENERAL HOSPITAL & TRAUMA CENTER • SAN FRANCISCO, CA

APPENDIX A – PROPOSAL LETTER

Potrero Neighborhood Collective
D&C Contractor Procurement
Potrero Yard Modernization Project
Infrastructure Facility

PROPOSAL LETTER

Proposer: Webcor Construction, LP dba Webcor Proposal Date: December 12, 2025

Sam Hull, Procurement Contact
Potrero Neighborhood Collective

The undersigned ("**Proposer**") submits this proposal (this "**Proposal**") in response to that certain Request for Proposals (the "**RFP**") issued by Potrero Neighborhood Collective ("**PNC**"), dated February 12, 2025, as amended, to design and construct the Infrastructure Facility component of the Potrero Yard Modernization Project (the "**Project**"), as more specifically described herein and in the documents provided with the RFP. Initially capitalized terms not otherwise defined herein shall have the meanings set forth in the RFP.

In consideration for PNC supplying us with the RFP and agreeing to examine and consider this Proposal, the undersigned undertakes:

a) to keep this Proposal open for acceptance for a period of one hundred and eighty (180) days commencing on the Proposal Due Date without unilaterally varying or amending its terms, without first obtaining the prior written consent of PNC, in PNC's sole discretion; and

b) if Proposer is selected as the Preferred Proposer, to provide security (including bonds, insurance, and if applicable, a guaranty, as described in the RFP) for the due performance of the D&C Contract as stipulated in the D&C Contract.

If selected by PNC as the Preferred Proposer, Proposer agrees that Proposer shall: (a) enter into the D&C Contract Documents as set forth in Section 1.6 of the RFP; and (b) perform its obligations as set forth in the D&C Contract, including compliance with all commitments contained in this Proposal.

Enclosed, and by this reference incorporated herein is the Proposal.

Proposer acknowledges receipt, understanding, and full consideration of the following:

- **N/A, No Addenda received during RFP.**

Proposer certifies that:

- The Proposal is submitted without reservation, qualification, assumptions or conditions;
- Proposer has carefully examined and is fully familiar with all of the RFP documents and is satisfied that the RFP documents provide sufficient detail regarding D&C Contractor's obligations and do not contain internal inconsistencies, errors or omissions;
- Proposer has carefully checked all the words, figures and statements in the Proposal;

- Proposer's completed Appendix C (Price Form) represents an accurate allocation of costs between the Bus Yard Component and Common Infrastructure based on Proposer's costs and the definition of "Common Infrastructure" set forth in the Technical Requirements;

- Proposer has notified PNC in writing of any deficiencies in or omissions from any RFP documents or other documents provided by PNC; and

- Proposer understands, acknowledges, and agrees that pursuant to Section 2.12 of the RFP, PNC shall be entitled to draw on the Proposal Bonds in its entirety if Proposer withdraws, repudiates or otherwise indicates in writing (including email) after the Proposal Due Date that it will not meet any commitments made in the Proposal or required by the RFP.

Proposer represents that all statements made in the SOQ previously delivered to PNC are true, correct and complete as of the date hereof, except as otherwise specified in the enclosed Proposal and related forms. Proposer agrees that such SOQ, except as modified by the enclosed Proposal and related forms, is incorporated as if fully set forth herein.

Proposer understands that PNC is not bound to award the Project and, if it awards the Project, is not bound to award it to the Proposer with the highest scoring Proposal.

Proposer further understands that all costs and expenses it has incurred in preparing this Technical Proposal and participating in the RFP process will be borne solely by Proposer.

Proposer agrees that PNC will not be responsible for any errors, omissions, inaccuracies or incomplete statements in the Proposal. The Proposal shall be governed by and construed in all respects according to the laws of the State of California.

To the extent Proposer claims an exemption from the Public Records Act, Proposer agrees to indemnify PNC, the City, and the respective officers, employees, agents and consultants, and hold them harmless from any claim or liability and defend any action brought against them for their refusal to disclose copyrighted material, trade secrets or other proprietary information to any person making a request therefore.

Proposer's business address:

207		King Street	Suite 300
(No.)		(Street)	(Floor or Suite)
San Francisco	California	94107	USA
(City)	(State or Province)	(ZIP or Postal Code)	(Country)

State or Country of Incorporation/Formation/Organization: California

By: 

Print Name: Matt Rossie

Title: President & CEO



B.
Updates to Respondent General Information Form

PICTURED: MISSION ROCK PARCEL F • SAN FRANCISCO, CA

No Changes

APPENDIX C
RESPONDENT GENERAL INFORMATION FORM

[Complete a separate Appendix C for Respondent, and if applicable, Guarantor. If Respondent is a joint venture, complete a separate Appendix C for each Respondent JV Member.]

Part A: Business Information

Name of Entity: Webcor Construction, LP dba Webcor

Year Established: 1971 Individual Contact: Matt Rossie

Entity's Role in the Project: D&C Contractor

Business Address: 207 King Street, Suite 300, San Francisco, CA 94107

Headquarters: 207 King Street, Suite 300, San Francisco, CA 94107

Office Performing Work: 207 King Street, Suite 300, San Francisco, CA 94107

Contact Telephone Number: (650) 823-5714

Legal Nature / Business Organization (check one):

- ☐ Corporation (If yes, then indicate the Authority and Year of Incorporation.)
- ☑ Partnership
- ☐ Joint Venture/Consortium
- ☐ Limited Liability Company
- ☐ Other (describe)

State of Organization: California

Federal Tax ID No.: 20-8399744

North American Industry Classification Code: 236220

No Changes

Part B: Legal Information

(1) Has the firm or any Affiliate[1] or any **current** officer, director or employee of either the firm or affiliate, been indicted or convicted of bid- or other contract-related crimes or violations (e.g., fraud, bribery, collusion, conspiracy, etc.) or any other felony or serious misdemeanor within the past 10 years (measured from the date of issuance of this RFQ)?

☐ Yes ☑ No

If yes, please explain:

(2) At any time during the last 10 years, has your firm or any of its Affiliates been found liable in civil or criminal court for false claims, material misrepresentation, dishonesty, or fraud against a public entity?

☐ Yes ☑ No

If yes, please explain. As to each such inquiry, state the name of the public agency, the date of the inquiry, the grounds on which the public agency based the inquiry, and the result of the inquiry:

(3) Has the firm or any Affiliate sought protection under any provision of any bankruptcy act within the past 10 years (measured from the date of issuance of this RFQ)?

☐ Yes ☑ No

If yes, please explain:

(4) Has the firm or any Affiliate been disqualified, removed, debarred or suspended from performing work for the federal government, any state or local government, or any foreign governmental entity within the past 10 years (measured from the date of issuance of this RFQ)?

☐ Yes ☑ No

If yes, please explain:

(5) Is the firm involved in any litigation that could have a material adverse effect on the firm's financial condition?

☐ Yes ☑ No

[1] For the purposes of this form, "Affiliate" refers to any of the following: (1) any person or entity that controls, directly or indirectly through one or more intermediaries, or is controlled by, or is under common control with, a Respondent, a Respondent JV Member, or a Guarantor, as applicable, or any of their respective shareholders, members, partners, or joint venture members; (2) any entity for which 10 percent or more of the equity interest in such entity is held, directly or indirectly, beneficially or of record by a Respondent, a Respondent JV Member, or a Guarantor, as applicable, or any Affiliate of a Respondent, a Respondent JV Member, or a Guarantor under clause 1 of this definition; or (3) any entity for which 10 percent or more of the equity interest in such entity is held, directly or indirectly, beneficially or of record by a Respondent, a Respondent JV Member, or a Guarantor's shareholders, other than shareholders whose only interest in the member is in the form of publicly traded stock. For the purpose of this definition, "control" means the power to direct the management of an entity, whether through voting, nomination, or other selection rights, by contract, through family relationship, or by other means "Common control" means two or more entities that are controlled by the same entity, entities or person(s).

If yes, please explain:

(6) Has any construction project performed or managed by the firm or any Affiliate involved repeated or multiple failures to comply with safety rules, regulations, or requirements within the past 10 years (measured from the date of issuance of this RFQ)?

☐ Yes ☑ No

If yes, please identify the firm or Affiliate and the project(s), provide an explanation of the circumstances, and provide owner contact information, including current telephone and fax numbers (and email address if available).

(7) Has the firm or any Affiliate been found, adjudicated or determined by any federal or state court or agency (including, but not limited to, the Equal Employment Opportunity Commission, the Office of Federal Contract Compliance Programs and any applicable California governmental agency) to have violated any laws or Executive Orders relating to employment discrimination or affirmative action within the past 10 years (measured from the date of issuance of this RFQ), including but not limited to Title VII of the Civil Rights Act of 1964, as amended (42 U.S.C. Sections 2000 et seq.); the Equal Pay Act (29 U.S.C. Section 206[d]); and any applicable or similar California law?

☐ Yes ☑ No

If yes, please explain:

(8) Has the firm or any Affiliate been found, adjudicated, or determined by any state court, state administrative agency, including, but not limited to, the California Department of Labor (or its equivalent), federal court or federal agency, to have violated or failed to comply with the Contractor's State License Law set forth in California Business and Professions Code sections 7000 *et seq.,* any law or regulation of the United States or any state within the past 10 years (measured from the date of issuance of this RFQ) governing prevailing wages (including, but not limited to, alleged violations of federal or state law regarding the payment of wages, benefits, apprenticeship requirements, payment for health and welfare, pension, vacation, travel time, subsistence, overtime compensation, personal income tax withholding or Federal Insurance Contribution Act (FICA) withholding requirements)?

☐ Yes ☑ No

If yes, please attach a separate signed page describing each violation.

NOTE: This question refers only to the firm's or any Affiliate's violation of prevailing wage laws, not to violations of the prevailing wage laws by a subcontractor.

(9) Has the firm or any Affiliate been determined, pursuant to a final determination in a court of law, arbitration proceeding or other dispute resolution proceeding, to be liable for a material breach of contract during the past 10 years (measured from the date of issuance of this RFQ) with respect to a project?

☐ Yes ☑ No

If yes, please identify (for each instance) the entity determined liable and the project name, provide an explanation of the circumstances and provide owner contact information, including telephone and fax numbers (and email address if available).

(10) Has a surety completed a contract on behalf of the firm or Affiliate or paid for completion because the entity was in default or terminated by the project owner with respect to a project during the past 10 years (measured from the date of issuance of this RFQ)?

☐ Yes ☑ No

If yes, please provide (for each instance) an explanation of the circumstances, the project name and an owner's representative with a current telephone and fax number (and email address if available).

(11) Has the firm or any Affiliate been terminated for cause during the past 10 years (measured from the date of issuance of this RFQ) with respect to a project?

☐ Yes ☑ No

If yes, please identify (for each instance) the entity terminated for cause and the project name, provide an explanation of the circumstances and provide owner contact information, including telephone and fax numbers (and email address if available).

(12) Has the firm or Affiliate been involved in any adverse claim, dispute or lawsuit between it and the owner of a public works project during the past eight years (measured from the date of issuance of this RFQ) in which the claim, settlement or judgment exceeded $50,000?

☑ Yes ☐ No

If yes, please provide a brief description (including the resolution) of each qualifying claim, settlement or judgment. For each instance, identify an owner's representative with a current telephone and fax number (and email address if available).

(13) At any time during the last 10 years (measured from the date of issuance of this RFQ), has the firm or an Affiliate been cited or assessed penalties for any "serious," "willful" or "repeat" violation of California Labor Code sections 6300 *et seq.* or the federal Occupational Safety and Health Act of 1970 (Public Law 91-596)?

☐ Yes ☑ No

If yes, please attach a separate signed page describing each citation.

(14) At any time during the last eight years (measured from the date of issuance of this RFQ), has your firm or any of its Affiliates been found liable in civil or criminal court for gross design errors and omission, material misrepresentation, and/or dishonesty during the design or construction of a project?

☐ Yes ☑ No

If yes, please explain:

(15) Has there been any instance during the last 10 years (measured from the date of issuance of this RFQ) where the firm or any Affiliate, or its owners, officers, or managing employees submitted a bid on a public works project and were found to be nonresponsive or were found by an awarding body not to be a responsible bidder?

☐ Yes ☑ No

If yes, please explain:

No Changes as of December 2025

Serious OSHA Citations

08/14/2014 – Citation # 317176766 – 2 Serious Citation ($39,375) Closed Contested ($26,435 in penalties paid)

Alleged Violation	Resolution	Penalty
T8 CCR 1621 (A) Railing and Toe boards		Reduced Citation - $8,435
T8 CCR 4999 (H) Handling Loads	Citation Reduced from Accident Related Serious to Serious and to $18,000; Fine Paid. Determined during investigation and hearing the Qualified Rigger had not followed protocols related to releasing the load.	Serious Citation - $18,000

05/15/2017 – Citation # 1191677 – 2 Serious/ 1 General Citation ($54,000) Closed Contested ($27,000 in penalties paid)

Alleged Violation	Resolution	Penalty
T8 CCR1637 (L) General Requirements-Removal of Braces	Citation and penalty remain as issued	SAR Citation - $18,000
T8 CCR 1637 C General Requirements-Anchorage and Bracing	DOSH removed A/R characterization. Penalty reduced.	Serious Citation - $8,100
T8 CCR 1509(A) Employer shall establish an effective IIPP in accordance with section 3203 of the General Industry Safety Orders.	DOSH reclassified to G. Penalty reduced.	General Citation - $900

(16) In the past five years (measured from the date of issuance of this RFQ) has the firm or any Affiliate had liquidated damages assessed against it during or after completion of a contract?

☐ Yes ☑ No

If yes, please explain:

(17) In the past five years (measured from the date of issuance of this RFQ), has the firm or any Affiliate had any license, credential, or registration revoked or suspended?

☐ Yes ☑ No

If yes, please explain:

(18) With respect to each of Questions 1 through 17 above, if not previously answered or included in a prior response on this form, is any proceeding, claim, matter, suit, indictment, etc. currently pending against the firm or any Affiliate that could result in the firm or Affiliate being found liable, guilty, or in violation of the matters referenced in Questions 1 through 17 above and/or subject to debarment, suspension, removal, or disqualification by the federal government, any state or local government, or any foreign governmental entity?

☐ Yes ☑ No

If yes, please explain and provide the information requested as to such similar items set forth in Questions 1 through 17 above.

AUTHORIZED REPRESENTATIVE:

Under penalty of perjury, I certify that the foregoing information provided in Part A and Part B of this Respondent General Information Form is true and correct, and that I am the authorized representative of the entity to which this form relates:

By: 

Print Name: Matt Rossie

Title: President & CEO

Date: 12/8/2025

Litigation Summary

Webcor, by virtue of its role as a general contractor, is a named defendant and/or cross-defendant in litigation involving construction defects, which relate to its subcontractors' work. These matters are fully-insured, are litigated by the responsible insurance companies, and in no way impact Webcor's ability to perform its work for this project. Please contact us should you require further information.

PROJECT	CAUSE OF CONTRACT VALUE DIFFERENCE	CAUSE OF COMPLETION DATE DIFFERENCE	DESCRIPTION OF DISPUTES/CLAIMS
THE ZUCKERBERG SAN FRANCISCO GENERAL HOSPITAL & TRAUMA CENTER	Price increase was due to Owner changes related to added scope.	Delay was caused by Owner adding scope and life safety system changes.	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
SFPUC BIOSOLIDS DIGESTER FACILITIES / WW-647R	N/A - Ongoing	N/A - Ongoing	No claims or disputes have arisen out of this project. Please do not hesitate to contact us should you require further information.
SAN FRANCISCO PUBLIC UTILITIES COMMISSION HEADQUARTERS	To achieve LEED Platinum, the commission had to significantly exceed its original budget. Webcor instituted a cost-control program saving the commission roughly $60 million without sacrificing schedule or quality. Price increase was due to Owner changes paid out of project contingency.	N/A - Project completed ahead of schedule due to Webcor's value engineering.	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
MOSCONE CENTER EXPANSION	Owner added new scope throughout the four phases of construction.	N/A - Completed on time	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
SFO HARVEY MILK TERMINAL 1 BOARDING AREA B / NO 10010.66	Webcor negotiated additional scopes to meet the project goals and took on additional nearby scopes.	N/A - Completed on time	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
MOSCONE CONVENTION CENTER TENANT IMPROVEMENTS	Price increase was due to Owner changes related to added scope.	N/A - Completed on time	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.

SFO INTERNATIONAL TERMINAL CUSTOMER HOSPITALITY BOARDING AREAS A&G / 9350A.66	Cost increase due to scope additions requested by SFO.	Schedule delay was due to time extensions approved by client due to additions to the scope requested by SFO.	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
SFO CONSOLIDATED ADMINISTRATION CAMPUS / 8872A.66	Price increase was due to the client's addition of a parking lot.	Delay due to the client's addition of a parking lot.	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
GRAND HYATT AT SFO / 8768.66	Price increase due to the progressive design build nature of the project and scope refinement by client.	Delay due to the progressive design build nature of the project and scope refinement by client	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
SFO PLOT 2 ROADWAY REALIGNMENT / 10515.71	Price increase due to scope changes and coordination of airport operations.	Delay due to scope changes and coordination of airport operations.	There were limited claims/disputes arising out of this project, primarily relating to closeout, which were resolved in the usual course of project completion/final payment. Please do not hesitate to contact us should you require further information.
SFO INTERNATIONAL TERMINAL BUILDING ROOF UPGRADE / 11813.71	N/A - Ongoing	Delay due to the Owner putting the project on pause for design for four months. Webcor continued with Precon services during the design pause.	No claims or disputes have arisen out of this project. Please do not hesitate to contact us should you require further information.
SALESFORCE TRANSIT CENTER	Price increase due to owner assessment, negotiation, and decision making for exact scope of high speed rail.	Delay due to owner assessment, negotiation, and decision making for exact scope of high speed rail.	This project was performed by a joint venture between Webcor and Obayashi, which initiated a breach of contract claim against the Owner for additional and extended general conditions due to compensable delays in October 2018. Related cross-claims were filed by the Owner. This matter is ongoing.



C.
Evidence to Do Business in California

PICTURED: NEWB EPSILON CAMP • MERCED, CA

Updated

Evidence to do Business in California

Secretary of State
Certificate of Status

I, SHIRLEY N. WEBER, PH.D., California Secretary of State, hereby certify:

Entity Name:	WEBCOR CONSTRUCTION L.P.
Entity No.:	200703400026
Registration Date:	02/02/2007
Entity Type:	Limited Partnership - CA
Formed In:	CALIFORNIA
Status:	Active

The above referenced entity is active on the Secretary of State's records and is authorized to exercise all its powers, rights and privileges in California.

This certificate relates to the status of the entity on the Secretary of State's records as of the date of this certificate and does not reflect documents that are pending review or other events that may impact status.

No information is available from this office regarding the financial condition, status of licenses, if any, business activities or practices of the entity.

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of September 15, 2025.

SHIRLEY N. WEBER, PH.D.
Secretary of State

Certificate No.: 368202931

To verify the issuance of this Certificate, use the Certificate No. above with the Secretary of State Certification Verification Search available at **biz**fileOnline.sos.ca.gov.

Updated

Contractor License

To the right is a copy of Webcor's contractor license issued by the Contractors State License Board (CSLB) demonstrating our license is current and active. Instead of being dated no earlier than 30 days prior to the SOQ due date, it provides proof that our license does not expire until 3/31/2026. The CSLB website also provides further proof that our license is current and active: https://www.cslb.ca.gov/OnlineServices/CheckLicenseII/LicenseDetail.aspx?LicNum=1037217



Tab A
Design & Construction Work Approach



Salesforce Transit Center
San Francisco, CA



SALESFORCE TRANSIT CENTER • SAN FRANCISCO, CA

Shaping the Future of San Francisco with Resilient, Purpose-Driven Infrastructure

We appreciate the opportunity to submit our technical proposal in response to your request. We have carefully reviewed the requirements and are confident in our ability to deliver a safe, efficient, and future-ready infrastructure facility that meets and exceeds expectations.

In the following sections, we will address the key topics outlined in the RFP and provide detailed explanations of how we plan to meet each requirement:

A. D&C Work Approach
Our strategy for construction logistics, hazardous material management, permitting, design integration, safety, quality, risk management, and communications.

B. Public Engagement and Inclusivity Approach
Our plan to exceed workforce development goals, engage diverse subcontractors, and strengthen community involvement.

C. Bryant Street Development Interface Approach
Our approach to coordinating with concurrent development partners and managing interface obligations.

D. Initial Schedule & Schedule Narrative
Our critical path schedule and methodology to achieve milestones and meet the Substantial Completion deadline.

Through this structured approach, we will demonstrate how Webcor's proven expertise and collaborative project delivery will achieve the project's goals, minimize risks, and ensure long-term community benefit.

Logistics Approach

Site Mobilization & Temporary Controls

Upon mobilizing to the project site, Webcor will set up temporary fencing around the site and close off the adjoining sidewalks while placing temporary signage to notify the public. The temporary fencing will also include the parking lane on the western side of Hampshire Street to support deliveries into the construction project.

Utility Disconnection & Pre-Demolition Preparations

Prior to demolition beginning, utilities to the existing building will be cut and capped, while temporary utilities, SWPPP, noise and dust mitigations and monitoring would be installed and operational. Once temporary measures are installed, the overhead catenary system cables will be demolished, overhead power lines will be moved underground as part of PG&E's Rule 20 work, and trees will be removed if necessary.

Hazardous Materials Management

During demolition, a subcontractor certified to remove hazardous materials will conduct follow bagging and separate disposal procedures as part of the abatement scope. A Certified Industrial Hygenist will monitor the demolition and removal of materials to ensure compliance with all codes and laws.

Excavation & Naturally Occurring Asbestos

During excavation, it is expected to expose naturally occurring asbestos. As a result, the excavation subcontractor will keep the soil wet during excavation and loading trucks while workers will wear asbestos monitors to ensure they are not exposed to levels above baseline.

Structural Construction & Crane Operations

After excavation is completed, there will be two tower cranes erected to support the structural construction of the new building. Once the structure is complete, one tower crane would be dismantled and the other crane will come down after roofing is completed.

Vertical Access & Hoist Installation

Once the structure is up to Level 3, personnel hoist(s) will be installed to provide vertical access to the workers. If two personnel lifts is used, one will be on the project east side off of Hampshire Street and the second would be on the project south along Mariposa Street. These hoists will be operational until the inside elevators are completed and inspected by the State of California.

Sidewalk Reconstruction & Site Demobilization

While the interiors and exterior doors are being completed, construction of new sidewalks will begin. Once the sidewalks are inspected and approved by the City, the temporary fencing will be removed and the parking lane on Hampshire Street will be returned back to the public.

Streetwork, Traffic, & Neighborhood Coordination

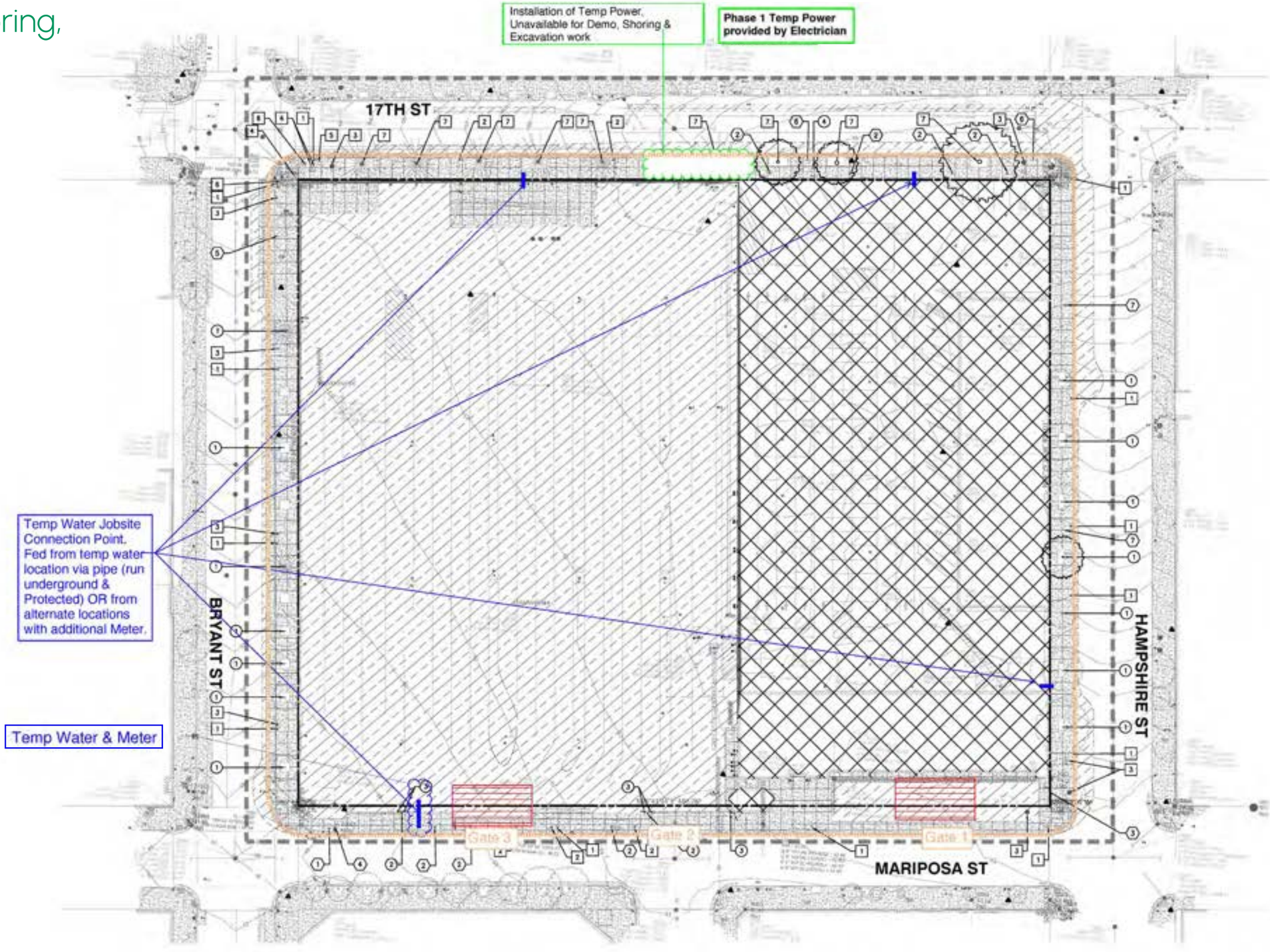
All streetwork will follow City of San Francisco requirements including receipt of permits to occupy street space for any work performed in the streets. This will include engineered street plans for any lane or road closures outlining temporary street signage and lane orientations. Neighbors will be aware of any upcoming street flow modifications early as part of our neighborhood outreach letters and our jobsite website.



UCSF HELEN DILLER HOSPITAL • SAN FRANCISCO, CA

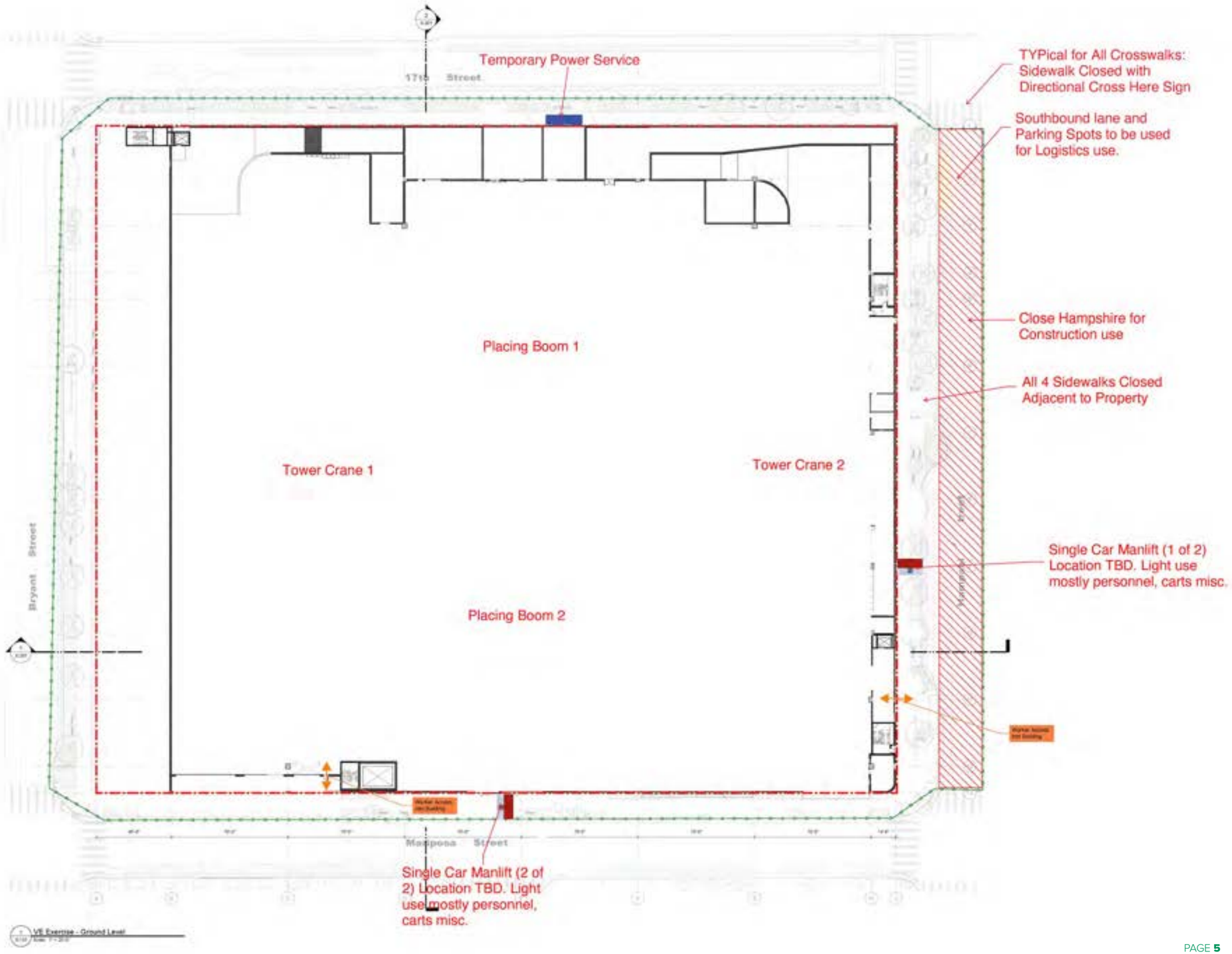
Construction Logistics:

Demolition, Shoring, & Excavation



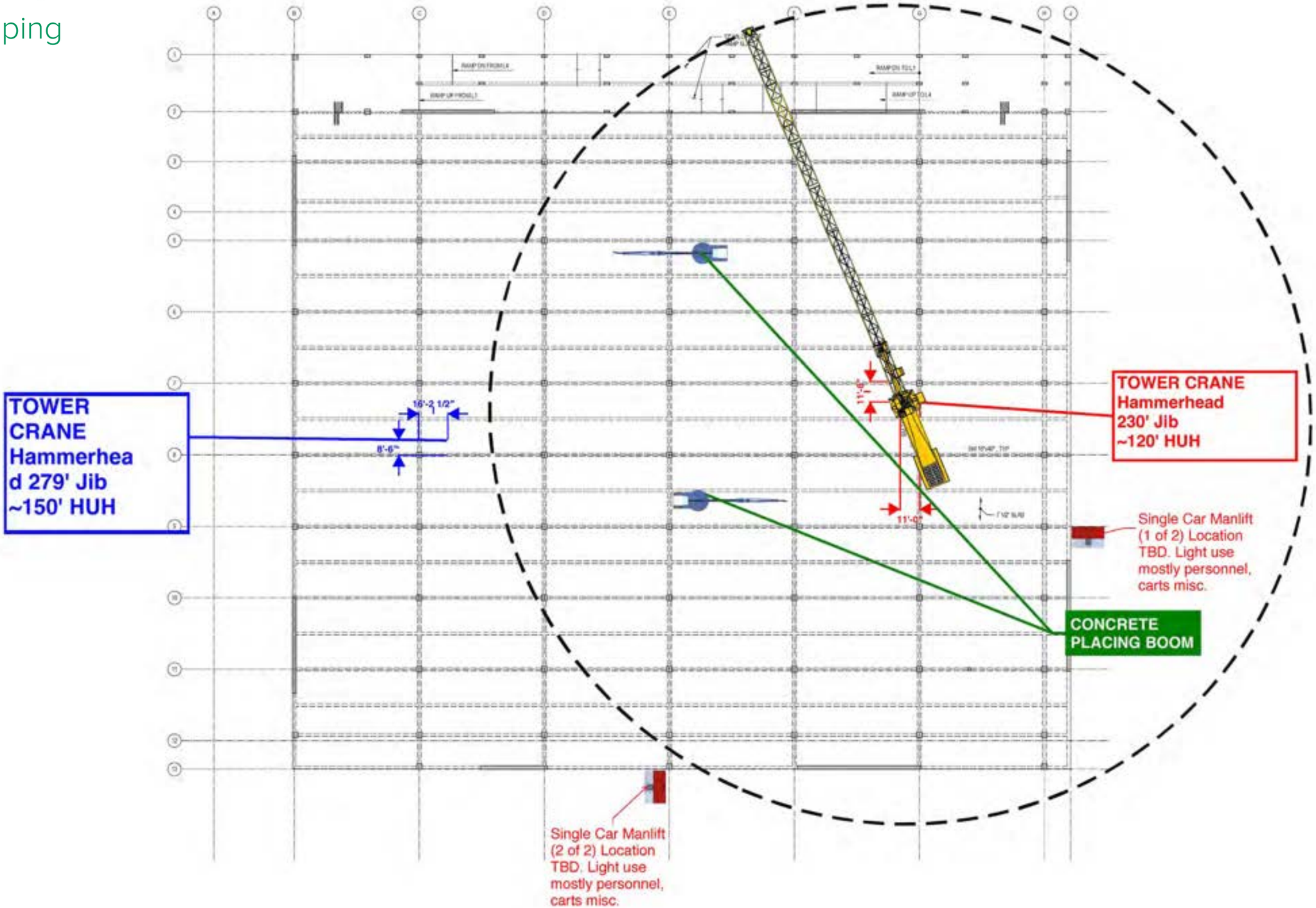
Construction Logistics:

Deliveries Materials
& Logsitics



Construction Logistics:

Concrete Pumping Locations



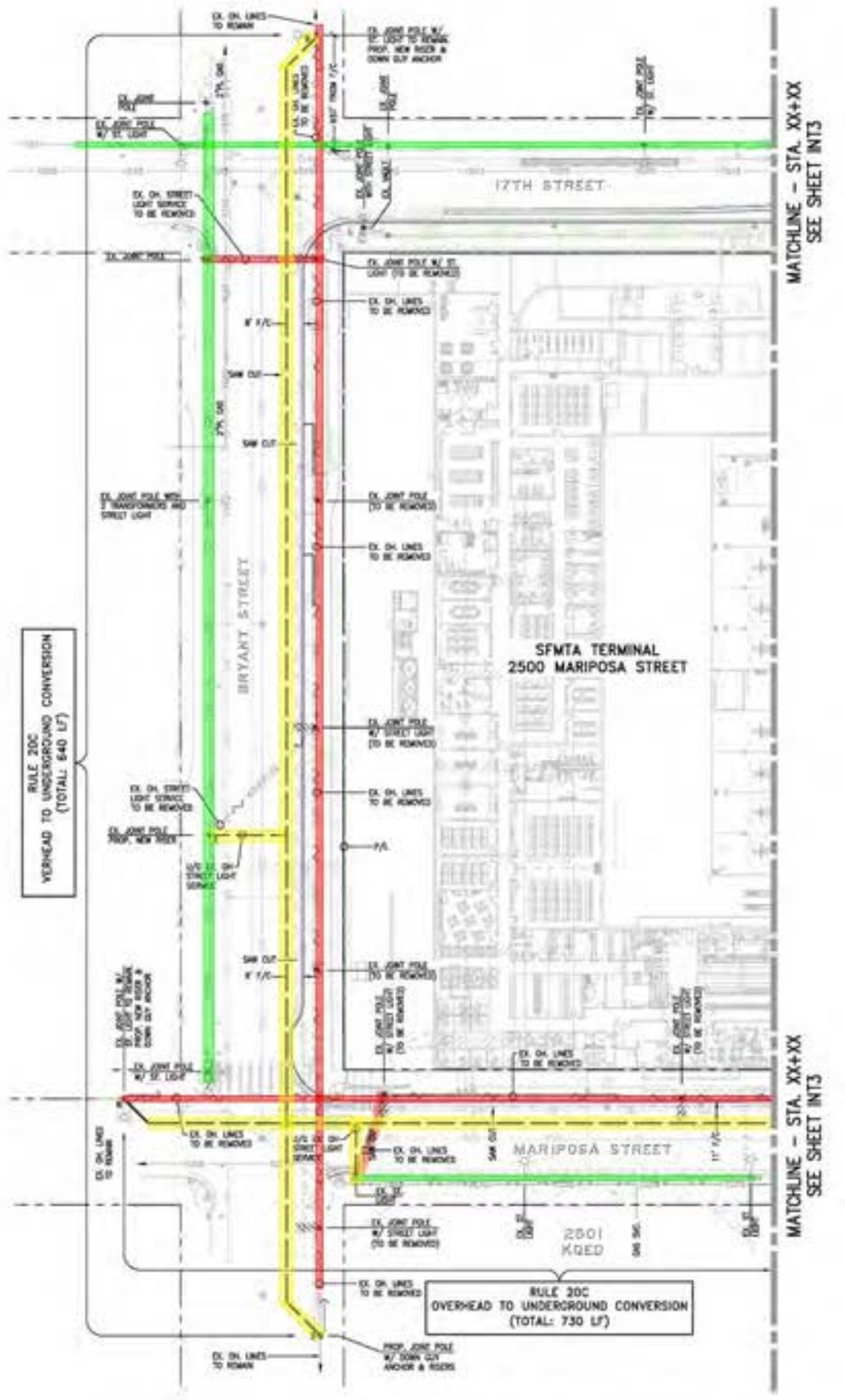
Construction Logistics:

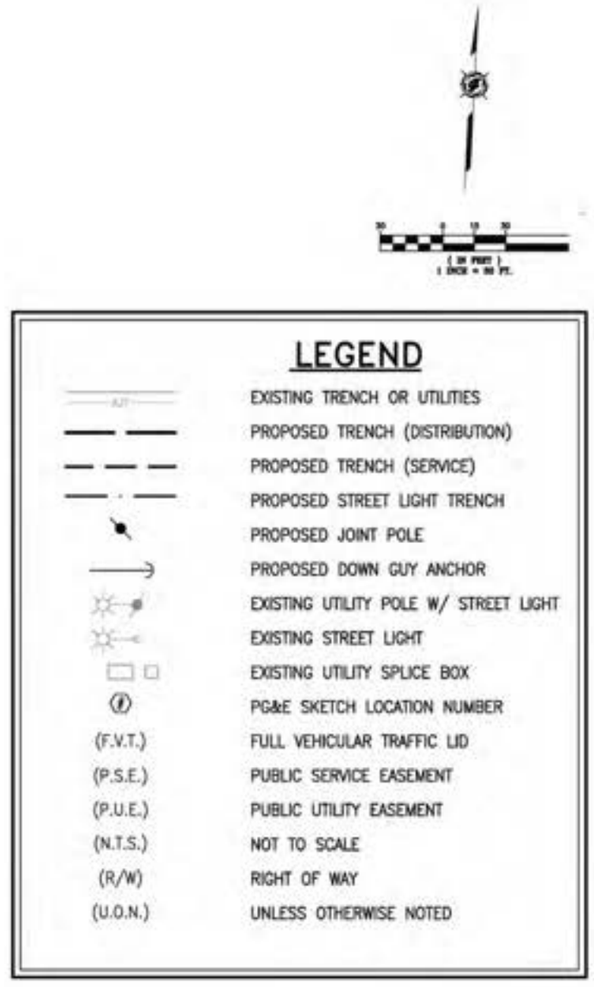
Existing Utility Work &
Utilities Relocation

Existing Overhead Power Lines to Remain in Place

Rule 20 Joint Tench Work

Existing Overhead Power Lines to be Removed





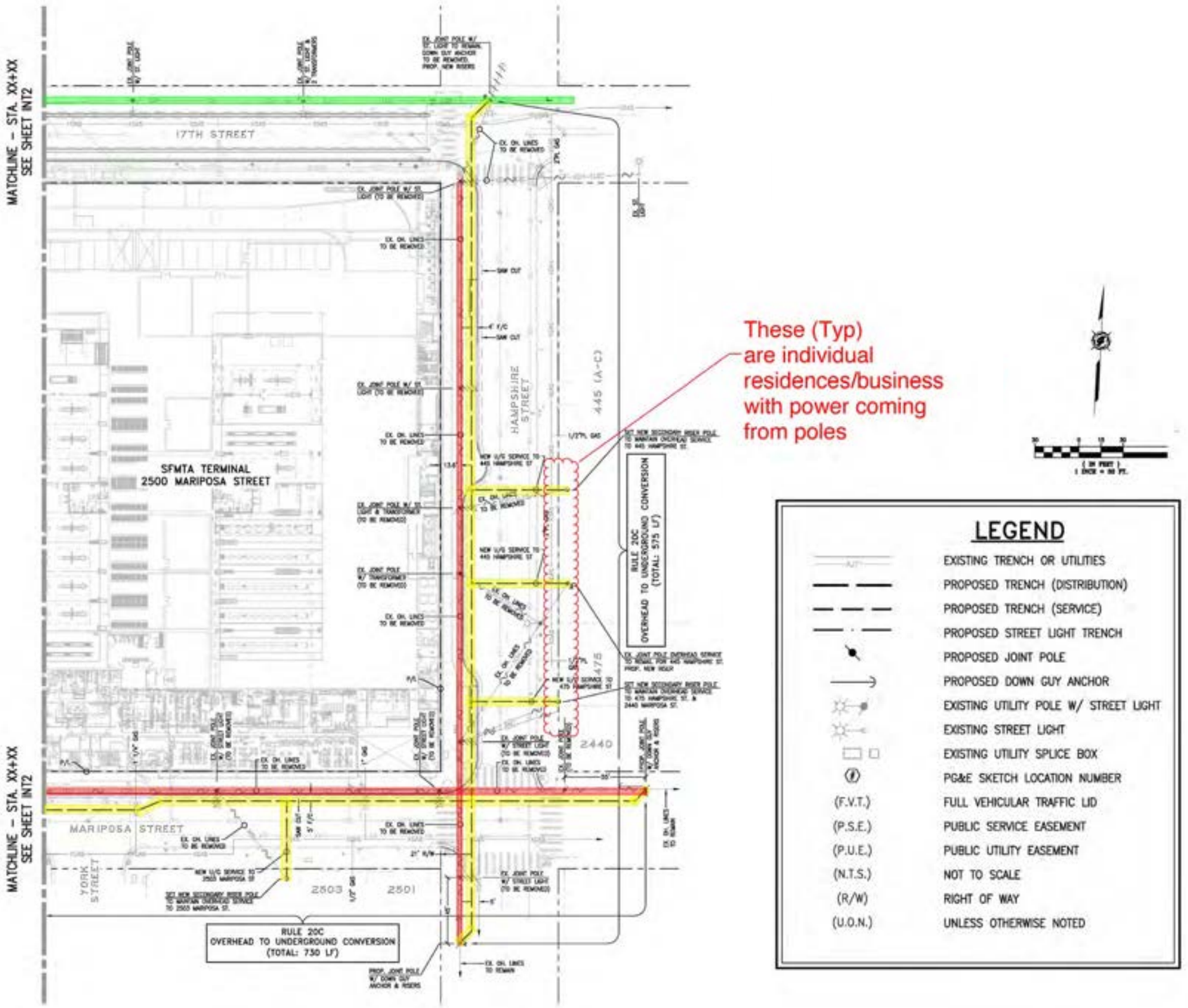
Construction Logistics:

Existing Utility Work &
Utilities Relocation

Existing Overhead Power Lines to Remain in Place

Rule 20 Joint Tench Work

Existing Overhead Power Lines to be Removed



LEGEND

	EXISTING TRENCH OR UTILITIES
	PROPOSED TRENCH (DISTRIBUTION)
	PROPOSED TRENCH (SERVICE)
	PROPOSED STREET LIGHT TRENCH
	PROPOSED JOINT POLE
	PROPOSED DOWN GUY ANCHOR
	EXISTING UTILITY POLE W/ STREET LIGHT
	EXISTING STREET LIGHT
	EXISTING UTILITY SPLICE BOX
	PG&E SKETCH LOCATION NUMBER
(F.V.T.)	FULL VEHICULAR TRAFFIC LID
(P.S.E.)	PUBLIC SERVICE EASEMENT
(P.U.E.)	PUBLIC UTILITY EASEMENT
(N.T.S.)	NOT TO SCALE
(R/W)	RIGHT OF WAY
(U.O.N.)	UNLESS OTHERWISE NOTED

Permitting Process & Strategies

Webcor's permitting strategy is grounded in deep experience navigating complex regulations statewide. We know effective permitting is key to maintaining momentum, mitigating risks, and avoiding costly delays. With decades of transit, infrastructure, and commercial project experience, Webcor engages design teams, consultants, and agencies early to define clear approval pathways.

Early Engagement & Due Diligence

During the preconstruction process, our team will:

- Review applicable codes, local amendments, and fire life safety regulations.
- Coordinate closely and proactively with local and state fire marshals.
- Track unique permit requirements—such as health permits, waste management protocols, and specialty systems.

Permitting Matrix & Critical Path Tracking

A detailed Permitting Matrix will be used to manage the multitude of permits required for the project, and to keep track of critical required building permits. A preliminary list of building permits for the project are as follows:

SCOPE	AHJS
Demo Permit	SF DBI
Grading, Excavation & Utilities Excavation Permit	SF DBI
Shoring Permit	SF DBI
Altered Site Permit	SF DBI
Tower Crane Permit	SF DBI
Addendum 2: Foundation and Superstructure Permit	SF DBI
Addendum 1: Health	SF DBI/Dept of Public Health
Addendum 3: Architectural, MEP, Civil, Landscape & Stormwater Permit	SF DBI
Addendum 5: Facade	SF DBI
Addendum 7: Generator, Fuel Oil & Piping	SF DBI
Addendum 6: Fire Alarm, Elevator Landing & 2-Way Comm	SF DBI / SFFD
Addendum 4: Fire Sprinkler & Underground Fire Service	SF DBI / SFFD
Addendum 9: Exterior Building Maintenance (roof embeds)	SF DBI
Addendum 11: Industrial Process Equipment	SF DBI
Addendum 10: Evacuation Sign	SF DBI
Traffic Control Permit	SFPW
Tree Removal Permit	SFPW / SFPUC
Special Traffic Permit - Rule 20	SFPW / SFPUC
Encroachment Permit - Rule 20	SFPW / SFPUC
Deferred Submittals	Reviewing Agency
Emergency Response Radio Communications System (ERRCS)	SF DBI / SFFD

Design Management

Our design management approach is rooted in disciplined processes, seamless collaboration, and a focus on end-user -ready facilities. We create a structured team environment that thoughtfully engages key stakeholders, including SFMTA's management, throughout. By integrating operational insights early, we ensure long-term efficiency, adaptability, and maintainability.

Integration of the End-User

We prioritize an inclusive and proactive design process that aligns architectural and infrastructure strategies with operational needs, integrates input from the end-user to enhance facility management and maintenance.

- **Early Design Coordination:** Involving the end-user from the start to embed operational, maintenance, and lifecycle needs into the design.
- **Design Review & Issue Resolution:** Using a structured process to track decisions and align design with long-term operational goals.
- **Technology-Driven Collaboration:** Leveraging BIM and digital tools to coordinate between designers, builders, and the IFM Provider.
- **Sequencing & Permitting Strategy: Aligning design milestones with permitting, procurement, and construction schedules to maintain efficiency and ensure timely approvals.**

By syncing design milestones with permitting and procurement, our team streamlines approvals, and keeps projects moving.

This integrated approach aligns design with regulatory requirements and ensures a smooth path from concept to completion.

Regulatory Alignment

The Potrero Yard Modernization Project requires precise alignment between design deliverables, City reviews, and quality oversight. By embedding regulatory compliance and quality assurance into every design milestone, we will maintain schedule certainty, reduce rework, and ensure the facility meets the City's long-term operational goals.

- **Design Quality Plan (PDQP):** Integrating §1.4.2 requirements to define design review procedures, document controls, and City comment resolution.
- **Submittal & Proprietary Reviews:** Managing Exhibit 11 and §1.8.5 processes with clear tracking, response logs, and approval sequencing.
- **Jurisdictional Approvals:** Coordinating with SFDBI, SFFD, PUC, and other AHJs through the Regulatory Approvals Plan (§1.1.6), affirming design approach while minimizing permitting bottlenecks.
- **Continuous QA/QC Oversight:** Embedding over-the-shoulder reviews, interdisciplinary design checks, and constructability reviews to identify and resolve issues early.

From the outset, our team integrates compliance and future-proofing to deliver complete, verifiable designs that ensure efficient, adaptable, and cost-effective operations.

MANAGEMENT OF TIMELY & INFORMED DECISION MAKING



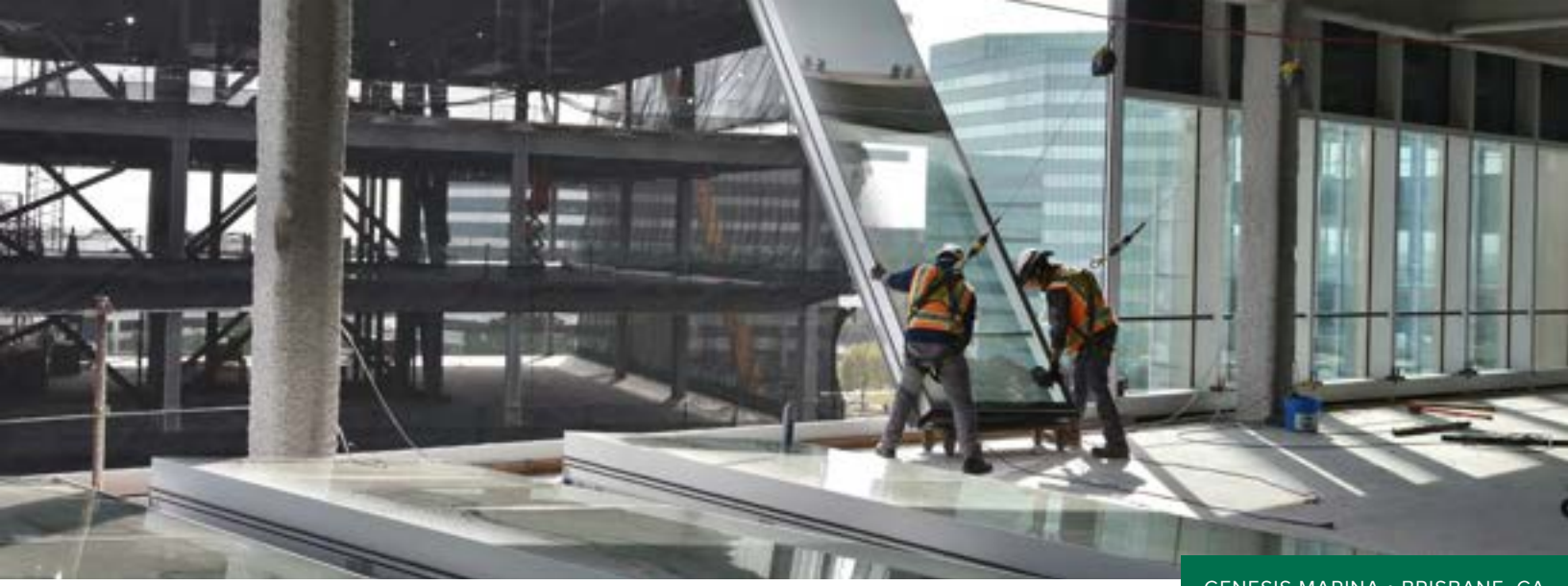
Set Critical Decision Dates



Align Stakeholder Decisions



Document Clear Records of Each Meeting



GENESIS MARINA • BRISBANE, CA

Managing Safety

Webcor's safety record is a point of pride and a direct result of the culture, systems, and care we bring to every project. At Potrero Yard, we will continue our legacy of safety throughout construction and in support of SFMTA's mission to create a modern, efficient, and sustainable transit hub.

Prioritizing Safety for All—Workers, Public, & Community

Webcor's safety approach at Potrero Yard Modernization centers on both physical and psychological well-being, shaped by the project's urban setting and community interface. Our "Speak Up for Safety" culture empowers every worker, partner, and visitor to raise concerns, reinforcing that safety is a shared responsibility.

A cornerstone of this culture is our Clean-as-You-Go program, which began with our self-perform teams and is now standard across all Webcor projects. This practice enhances jobsite safety, builds pride, reduces hazards, and boosts both productivity and morale. We work closely with trade partners to foster trust, proactively identify risks, and ensure consistent safety performance that supports schedule and quality.

Given the site's location at the nexus of transit operations, neighborhoods, and city streets, we will apply our deep urban construction experience to formulate our logistics planning by using thoughtful phasing and clear communication.

Our logistics planning will integrate thoughtful phasing and clear communication. Site enclosures will prioritize safety, wayfinding, and impact reduction.

Enhancing the Worker Experience

Webcor recognizes that creating a safe, productive, and respectful work environment is critical to attracting and retaining the skilled labor necessary for a project of this scale. Our site setup and logistics prioritize cleanliness, safety, lighting, and efficient crew flow—tailored to support productivity and maintain the integrity of our safety standards.

We launch every project with our Project Checklist, covering winterization, site facilities, waste disposal, work hours, and safety protocols. Well-organized and welcoming team spaces promote collaboration and foster psychological safety, ensuring workers feel valued, heard, and supported.



On the Zuckerberg San Francisco General Hospital & Trauma Center project [above], Webcor achieved a remarkable Lost Time Case Rate of 0.25—an extraordinary feat on an active urban campus.

Achieving LEED Gold

By integrating LEED-driven strategies, Webcor will ensure that the Potrero Yard Modernization Project achieves its sustainability benchmarks, enhancing San Francisco's transit infrastructure for decades to come. Our expertise in energy-efficient, high-performance construction will position this project as a model for resilient, environmentally responsible transit facilities, balancing innovation, sustainability, and long-term operational efficiency.

Integrating Sustainability into the Potrero Project

Webcor is committed to an integrated design process that prioritizes sustainability, lifecycle efficiency, and environmental responsibility to meet the LEED BD+C v4/4.1 Gold certification for the Potrero Yard Modernization Project. Our approach leverages data-driven decision-making, lifecycle cost assessments, and advanced sustainability strategies to ensure that sustainability measures align with long-term operational efficiency and resilience.

We will integrate high-precision lifecycle cost assessments (LCCA) with design-side energy modeling and construction-side cost estimates to optimize systems selection and deliver quantifiable sustainability benefits.

Minimizing Carbon Impact & Enhancing Resilience

Webcor has delivered over 150 LEED-certified projects. To meet LEED BD+C v4/4.1 Gold requirements on the project, Webcor will implement vetted strategies that prioritize energy efficiency and long-term environmental benefits:

- **Energy Efficiency:** High-performance MEP systems, renewable energy integration, and passive design to reduce consumption.
- **Construction Waste Diversion:** Achieving a minimum of 75%+ waste diversion, minimizing landfill impact, and supporting San Francisco's waste reduction goals.
- **Water Conservation:** Implementing low-flow fixtures, water reclamation, and stormwater management to reduce potable water use.

WEBCOR SUSTAINBILITY EXPERTISE

20+ YEARS DELIVERING SUSTAINABLE PROJECTS THROUGHOUT CALIFORNIA



Webcor's original Sponsorhip of the USGBC (1993)



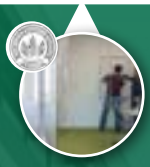
Cathedral of Christ the Light [Mass Timber] (2007)



California Academy of Sciences (2007)



Founding Partner of Carbon Leadership Forum (2009)



Samsung Semiconductor HQ (2015)



Salesforce Transit Center (2018)



UC Merced 2020 Expansion (2020)



SFO Harvey Milk International Terminal Boarding Area B (2021)



Contra Costa Administration Building Redevelopment (2024)



SUBCONTRACTOR OUTREACH EVENT AT WEBCOR OFFICE • SAN FRANCISCO, CA

Subcontracting & Self-Performance

Webcor will foster collaboration and drive project momentum at Potrero Yard through proactive subcontractor engagement and strategic use of our self-perform craft capabilities. We will engage trade partners early and leverage our in-house expertise to execute critical scopes, ensuring quality delivery and alignment with the City's operational needs and long-term goals.

Subcontractor Management

At the onset of each project, Webcor fosters a collaborative environment that empowers subcontractors to identify potential issues early and apply their expertise to solve challenges before they impact the project. We infuse their insights into constructability, sequencing, and operations, engaging them early to inform design and execution.

Throughout design and preconstruction, we will collaborate in a shared BIM platform and conduct Bluebeam review sessions at key milestones, allowing the team to comment, identify critical path elements, and align plans.

> **Webcor's vast knowledge of the subcontractor resources**, not only in the Bay Area, but beyond, brought the best thinking and skills to the project at the best time and reflected the best value to the owner."
>
> *Darryl Roberson, FAIA, Principal, Studios Architecture*
> *Foundry Square*

Webcor Craft: Key Project Asset

Self-perform work is core to Webcor's identity. Our skilled teams of Carpenters, Laborers, Drywallers, Masons, and Operators specialize in concrete, structural and architectural carpentry, and general labor, critical scopes for complex infrastructure projects like Potrero Yard Modernization.

By leveraging craft labor, we can fill market gaps, control critical path work, and ensure schedule certainty—especially when subcontractor availability is limited. Our teams often lead foundational scopes like structural concrete, formwork, drywall, rough carpentry, and general conditions work, which positively influences the overall project momentum.

In preconstruction, their input sharpens, schedule, and constructability planning, helping define scopes, reduce risk, and support a smooth buyout. At Potrero Yard, this in-house capability strengthens our ability to deliver with consistency and control.






Quality Control & Quality Assurance

Webcor, an ISO 9001 certified company, will approach Quality Assurance and Quality Control (QA/QC) at Potrero Yard with the goal of solving potential issues early, maintaining discipline through every phase, and delivering a finished product that meets the City's high standards for durability, performance, and long-term operations.

Program Validation & Scope Compliance

Webcor will ensure alignment with program requirements and eliminate scope ambiguity by implementing a live tracking tool used in close collaboration with the design team. In collaboration with every project stakeholder, we will confirm that every scope element is properly documented, thoroughly coordinated, and strategically aligned with overall project objectives.

In parallel, Webcor will develop a Jurisdictional Approvals Matrix to provide real time visibility into all required agency approvals. By proactively tracking Conditions of Approval and permitting milestones, this will enable the team to manage regulatory obligations efficiently and reduce risk to the project schedule.

Interdisciplinary Coordination & Design Quality

Following the Design Quality Plan, our team team will drive a comprehensive and tightly integrated design coordination effort, encompassing:

- Over-the-Shoulder (OTS) Reviews for real-time feedback as design progresses.
- Constructability Reviews to eliminate conflicts, clarify details, and align documents with construction best practices.
- Interdisciplinary Design Reviews (IDRs) to identify system conflicts early and resolve them before permit submissions.
- Sustainable Design Monitoring to ensure systems and materials reinforce long-term operational performance.

Seamless QA/QC Processes

Webcor will assign a dedicated team of QA/QC professionals, led by our experienced QA/QC Program Manager, to support the project from start to finish. The team will establish the Quality Management Program, including documenting the Quality Management System that will set the standard for Design and Construction Quality. This commitment to team continuity ensures seamless transition from design to construction, maintaining clear communication, consistent oversight, and project integrity.

Our teams are constantly looking for more efficient ways to work and share information that benefits every aspect of the project's quality. Many of the tools we use are custom-built to meet the specific needs of the project or client, including project dashboards, carbon tracking tools, 3D logistics plans, BIM coordination, and interactive collaboration platforms. Each tool is designed to improve communication, transparency, and performance from concept to closeout.

Construction Quality Execution

During construction, following the Construction Quality Plan, Webcor will implement a robust Quality-In-Construction (QIC) program incorporating monitoring, inspection, testing, and acceptance protocols for all materials, methods, and workmanship. Our use of web-based inspection software will allow the team to track trends, identify recurring issues by trade or area, and address them proactively.

All quality items will be monitored from discovery through correction and sign-off, ensuring accountability. QC inspectors will have full authority to stop work that does not meet contract requirements, maintaining the integrity of the work throughout. All completed work will be captured in as-built documentation for future reference and maintenance.

Risk Management

Our team approaches risk management as a proactive, continuous process critical to maintaining project momentum, and ensuring a successful delivery. Given the complexity of the Potrero project, early identification and mitigation of risks will be a priority from day one.

Plan to Identify, Manage, & Mitigate Risks

We will lead collaborative efforts to identify, assess, and manage risks throughout the project lifecycle. These efforts include:

1. Categorizing Risks by source—design, site conditions, utilities, hazardous materials, community impact, environmental factors, and regulatory processes.
2. Prioritizing Risks based on potential impact to schedule, safety, quality, public operations, and community relations.

This structured process ensures that all risks, whether predictable or unforeseen, are recognized early and addressed efficiently.

Risk Register & Management Plan

To keep risk management actionable and transparent, we will maintain a Risk Management Plan. This doucment will assign each risk to a responsible team member or partner, outline triggers and contingency plans for high-priority risks.

Risks are reviewed weekly during team meetings to ensure continuous visibility and timely updates.

Focused Risk Mitigation Strategies

Our mitigation efforts will focus on the highest-impact risks. We will allocate resources strategically, **engage early with PG&E and SFPUC** to avoid utility conflicts, and sequence work to prevent service disruptions. Hazardous materials will be abated early to reduce environmental and safety risks.

Traffic control will be planned to protect public mobility, and permitting timelines will be built into the project schedule with early agency engagement to avoid critical delays.

Measuring Effectiveness & Continuous Improvement

Each risk will include measurable mitigation actions and criteria to track progress and effectiveness. We will continuously evaluate mitigation strategies, adapting them as needed to respond to changing conditions or new risks.

Through this collaborative and transparent process, our team will ensure that potential risks are identified early, addressed proactively, and monitored closely—preserving project objectives, protecting public safety, and minimizing community impacts.



At the SFO International Terminal Roof Upgrade [above], Webcor is using work plans to align with operations and protect over 80,000 daily travelers. This same safety-focused, precision planning will inform our approach at Potrero Yard, where public mobility and continuous operations are key.



MOSCONE CENTER EXPANSION • SAN FRANCISCO, CA

Risk Identification for Potrero Yard Modernization

DESIGN	**Design development for site permit and foundation permit**	Design development to the SD+ level, as well as stakeholder review and acceptance of design direction, are critical to submitting site permit and foundation permits.	Develop detailed design schedule incorporating milestone activities and review periods while also consistently communicating deadlines
DESIGN	**Completion of Site Utility Surveys**	Impacts and delays associated with undocumented underground utilities.	Develop a detailed site survey process to help identify unidentified underground utilities including a detailed potholing plan
PROJECT MANAGEMENT	**Limited Space for Program**	Finding room within resized space to accommodate MEP systems, program, and appropriate adjacencies.	Develop process to map out utility disruptions and review MOP steps, develop scenarios in case
CONSTRUCTION EXECUTION	**Site Utility Completion**	Incomplete site utility work may impact onsite construction activities.	Develop detailed Rule 20 schedule and OCS demolition schedule and engage utility owners early in the process and have early buyin on the approach.








Public Outreach Efforts

At Webcor, we're proud to build in the neighborhoods we call home. With 52 years of general contracting experience, we understand that strong partnerships rely on more than concrete and steel. They're built through trust, transparency, and open communication. Our relationship with the Potrero Yard Neighborhood Working Group (PYNWG) and the surrounding community reflects this belief.

Building Trust Through Communication

For the Potrero Yard Modernization project, we will prioritize consistent and meaningful communication to ensure alignment between construction activities and neighborhood expectations. By sharing timely, relevant information, we're doing more than modernizing a transit facility, we're helping the community grow in ways that extend far beyond the jobsite.

We will consult with PNC to develop a comprehensive Good Neighbor Plan with an appropriate cadence of newsletters, flyers, website postings, signage, meetings, open houses, and public notices to engage with the local community and the Potrero neighborhood residents well in advance of potentially impactful activities related to the Potrero Yard Modernization Project. In every project, we keep the owner, stakeholders, and the surrounding community informed through the methods listed above, always incorporating our 10-Day Look-Ahead Schedule of critical activities.

Equal in importance with providing information outward, is to also provide a conduit for the Public to provide feedback back to our team. A channel that streams information back inward from the Public to the project. We will provide methods to capture feedback to listen to concerns from the neighborhood.

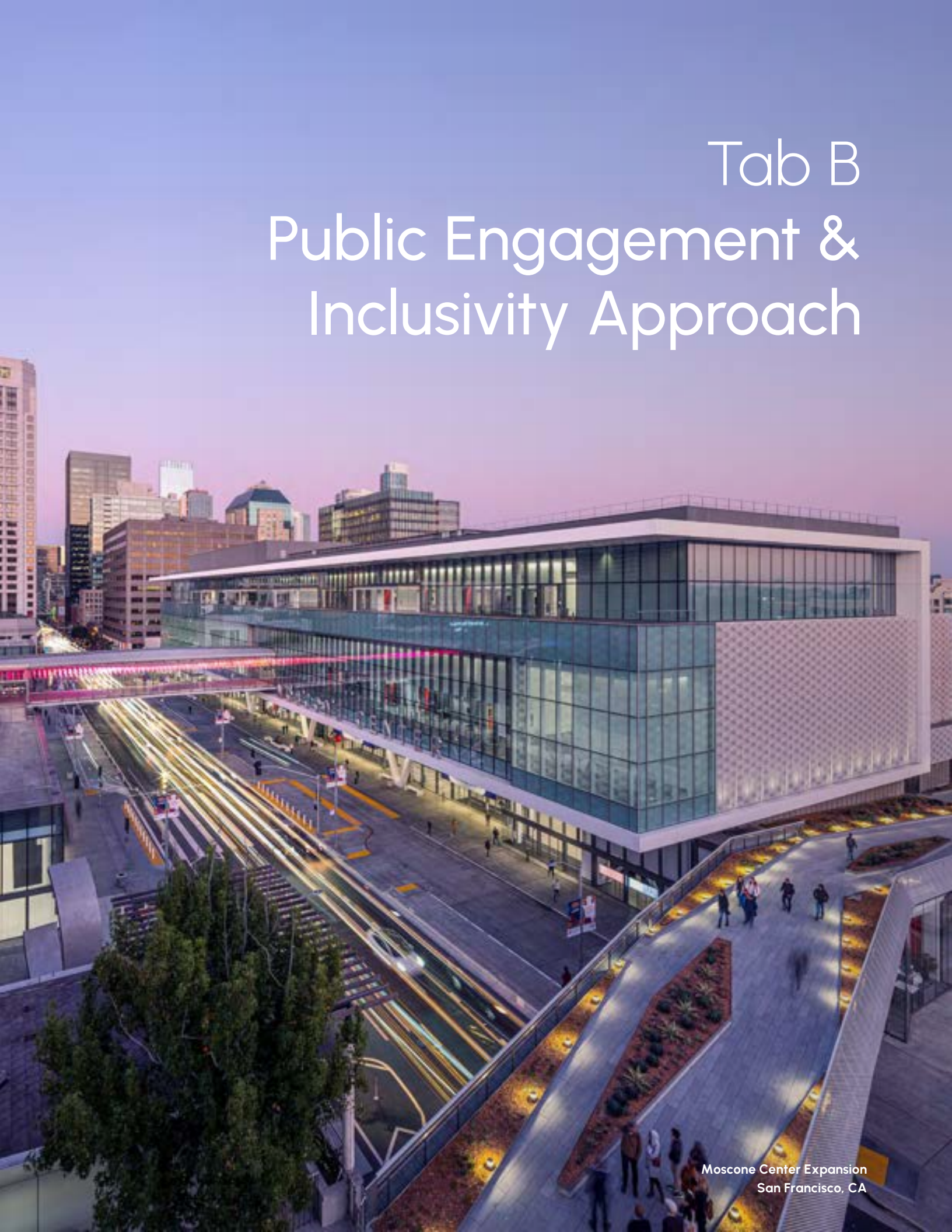
Keeping Potrero Community Informed & Involved

Our team will coordinate and hold community outreach events at select community locations, as well as reach out to local groups. We will have a strong Good Neighbor Plan. **Sharla Sullivan, Webcor's LBE/ Community Outreach Manager**, will leverage her long-standing ties to the San Francisco community and local groups to be one of the faces of the project and lead the communication channels with the neighborhood.

Our plan specifically identifies and works with all parties near the site: residents of the neighborhood; vehicular, pedestrian, and other traffic on bordering streets; and local businesses. Our communications will keep the community updated with the project status, major upcoming milestones, and what effect (if any) it will have on them or the surrounding areas. We will establish a hotline so interested persons can talk to a real person in real time to ask questions and discuss issues. Site personnel will be assigned to the hotline to verify and address any problems that are reported.

The project represents a valuable teaching and experiential education opportunity. We will explore opportunities to offer neighbors and students site tours, to learn about the construction process and see this exciting new community resource taking shape.

Tab B
Public Engagement & Inclusivity Approach



Moscone Center Expansion
San Francisco, CA

LBE Participation

LBE Engagement Leadership

Webcor's overall approach to LBE and Workforce development participation on all of our projects is to optimize the usage of small local business partners on scopes of work that actually foster and propel their success. Our 19 continuous years of providing general contracting services to The City and County of San Francisco have earned us valuable lessons in executing both Small & Local Business, and Workforce Development programs. Success in these initiatives is dependent on the team's commitment to the program, as well as creating new pathways to achieve business subcontracting and workforce hiring goals.



WEBCOR SUBCONTRACTOR EVENT • SAN FRANCISCO, CA

Webcor's Small and Local Business program, led by **Sharla Sullivan, LBE/Community Outreach Manager,** begins with the project budget and diving deep into identifiable scopes of work that can be delivered successfully by Small Local Businesses Enterprises. We are informed by our past project results to quantify scopes where we know we can capture LBE success. This analysis becomes our LBE plan which complements our project's overall buyout plan. To optimize LBE participation, we often subdivide scopes in work packages so smaller firms can participate competitvely, at times encouraging partnerships with larger firms.

Local Business Enterprise Success

A strong Outreach program is key to maximizing LBE participation. We ensure potential LBEs are informed early and clearly about upcoming opportunities, giving them time to prepare and respond. We proactively engage a broad network of trade partners, sharing subcontracting opportunities with increased frequency. We achieve this by:

» Working with various agencies, Community Based Organizations and Special Interest Groups such as Potrero Neighborhood House, CMD, WRMSDC, BuildOUT CA, NAMC, Black and Latinos Builders Association, local chambers of commerce, state unified DBE certification database, and our own BuildingConnected CRM.

» Hosting outreach events to explain our methodology, project milestones/schedules, prequalification criteria, and provide sources of assistance such as bonding and insurance

» Proper advertising of opportunities through print, industry publications, social media, websites, and partner supplier diversity organizations

» Conducting site walks with trades to ensure clarity of scopes of work

Providing LBE Mentorship

Supporting LBE trade partners after onboarding is essential to our approach. We mentor project LBEs by offering guidance, resources, and hands-on support to help them navigate project complexities. This includes:

» Regular check-in meetings to address questions and provide feedback on schedule, coordination, constructability, resource planning, risks, and current market conditions.

» Training and education such as safety, construction methodologies, process, quality control, financial management, and necessary forms/paperwork with the City of San Francisco

» Guidance on project protocols, best practices, and construction regulations

» Networking opportunities that may help propel their business beyond the current project

Mentor Protégé Program

Webcor is a formal Mentor to our business Protégé, Contigo Communictions. Through this vital relationship we aspire to help them grow with business strategies and decisions.






Local Hiring & Workforce Development Success

Webcor's commitment to maximizing local business participation naturally extends to local hiring. Our projects are designed to fuel community development, creating lasting economic and social value for the neighborhoods where we build. We believe the most meaningful impact during construction comes from employing a strong local workforce. Hiring locally generates jobs, keeps financial resources within the community, and fosters a deep sense of pride for residents who live and work in the area.

Webcor is a long-standing advocate of San Francisco's Local and First Source Hiring programs. We are proud partners with the Office of Economic and Workforce Development to support CityBuild Academy's pre-apprenticeship training. As a founding team member and seed investor, Webcor continues to meet with CityBuild leadership to provide feedback and volunteer in educational sessions. We consistently place CityBuild graduates on our projects, regardless of agency or contract requirements.

With the highest share of public sector work in San Francisco, Webcor was invited by City officials to help draft and revise the Mandatory Local Hiring Ordinance, which applies scaled hiring goals to all publicly funded projects over $400,000. We collaborated with City agencies, unions, and CBOs to align ordinance goals with real-world construction practices.

We also apply First Source Hiring creatively, extending opportunities beyond construction roles. We've hired qualified local workers as office clerks, managers, and interns, creating broader pathways for economic opportunity and deepening our connection with the communities we serve.

Workforce Development in Action

Webcor brings proven success with public works local hire requirements. On the SFPUC Biosolids Digester project, we exceeded hyper-local hiring targets through strong internal leadership and close collaboration with City agencies. We actively engage with CityBuild by attending graduations, leading mock interviews, and preparing cohorts for success on the jobsite.

For SFMTA's Employment Training Program, we will apply this same proactive, collaborative approach. We coordinate early with program leads to identify training roles, define timing and skill needs, and plan onboarding throughout the project. This ensures we meet or exceed hiring goals while creating meaningful opportunities for local workers.

Partnering with Local Schools to Inform about Construction Careers

We provide career sessions, classes, and internships at the high school and college levels to bring awareness of construction and operations careers, including:

- **ACE Mentor Program**
  International after-school mentorship program that engages high schoolers to pursue careers in the ACE industry through hands-on mentorship from industry professionals.
- **Cristo Rey Work Study Program**
  Program provides on the job administrative work experience for students from the Cristo Rey Network of Schools.
- **John O'Connell High School Tech 21 Program**
  Partnership with the school's woodshop program allows direct sponsorship and placement into the carpentry trade.



Tab C
Key Personnel



SFO Harvey Milk International Terminal 1 Boarding Area B
San Francisco, CA

Team Leadership

Project success begins with seasoned leadership. Each of our key team members bring over 15 years of industry experience leading complex infrastructure projects throughout California. We intentionally selected this team for its collective experience as it relates to the program and planning principles identified in the scope of work. In fact, our project team has all collaborated with one another on numerous complex infrastructure projects. Our team serves as extensions of our clients' staff to ensure that crucial projects, such as the Potrero Yard Modernization project, are efficiently planned, designed, and executed.

Section 1.1.4	Name
Project Director	Joshua Coulter
Project Manager	Gordon Gangitano
Deputy Project Manager	Erik Biczkow
Equity Member's Project Principal	Chris Jauregui
Engineer of Record	In Progress
Architect of Record	Arcadis
Design Manager	David Mulvey
Construction Manager	Tom George
Quality Program Manager	Evan Sims
Project Safety Representative	Kevin Kwit

PROJECT MANAGER

Gordon Gangitano



Years in Industry

23

Years with Firm

18

Education

» **BA, Urban Studies**
San Francisco State University

Certifications

» OSHA 30
» First Aid/AED/CPR

Additional Experience

» Zuckerberg San Francisco General Hospital & Trauma Center
» Moscone Center Expansion
» Newark Civic Center
» Grand Hyatt at SFO
» American Airlines T1/T2 Relocation at SFO
» SFO Reach Hospitality
» SFO Consolidated Administration Campus
» Facebook Park Tower TI

Role Description

As Project Manager, Gordon is responsible for bidding, buyout, subcontract management, project cost control, change order management, client billings, schedule analysis/management, and closeout activities. He participates in the design optimization/value engineering and manages trade partners and vendors to ensure that specific work scopes are bought out optimizing client value. Gordon supports senior management staff as the day-to-day liaison between Webcor, the client, and the design team. He provides direct supervision to assigned Project Engineers and Project Assistants.

Select Experience

SFO Harvey Milk Terminal 1 Boarding Area B

SAN FRANCISCO, CA • SCHEDULING DIRECTOR • $857M • AVIATION

Ground-up, three-phase reconstruction of a Type I terminal, with each consecutive phase sequentially expanding the Boarding Area. This 572,538 SF project delivered 24 new gates with PBBs, 18 hold rooms, clubs and a central lounge, an international corridor, support spaces, retail, and a new baggage system. Much of the work occurred within the existing operational terminal, impacting active passenger areas while maintaining elevated passenger experience. Delivered alongside another major project in the same terminal, Webcor was in close coordination with the adjacent GC to ensure seamless execution.

SFPUC Biosolids Digester Facilities

SAN FRANCISCO, CA • SCHEDULING. DIRECTOR • $2B • INFRASTRUCTURE

Infrastructure and ground-up construction for the relocation and replacement of the Southeast Water Treatment Plant (SEP), the SFPUC's largest wastewater treatment facility. The $2B, 400,000 SF new campus is designed to produce higher-quality "Class A" biosolids, effectively capture noise and reduce odors, maximize biogas use and energy recovery, and strengthen seismic and climate change resilience. SFPUC endeavors to create 3,300 local jobs and transform the site into a place of pride for the Bayview-Hunters Point community. The project is targeting LEED certification.

Grand Hyatt at SFO

SAN FRANCISCO, CA • SCHEDULING DIRECTOR • $233M • AVIATION

Ground-up, Type I concrete four-star airport hotel totaling 272,000 SF, with 215 parking stalls, an AirTrain station, flexible meeting space, full-service and casual restaurants, and a gym. Delivered in multiple phases adjacent to SFO's active airfield and near other GC-led projects, it required tight coordination and phased logistics. Webcor self-performed concrete and drywall. This project is LEED Gold®.

DEPUTY PROJECT MANAGER

Erik Biczkow



Years in Industry

14

Years with Firm

14

Education

» **BS, Civil Engineering**
California Polytechnic State University, San Luis Obispo

Certifications

» Professional Engineer (PE)

Additional Experience

» UC Merced 2020 Expansion
» Uptown Tenderloin Museum
» Tower Two at One Rincon Hill
» Cityview Oakland Waterfront Parcel J
» BlackLine Pleasanton
» Ace (1951 Shattuck)
» Four Seasons Private Residences at 706 Mission St.
» Illumina Campus at Lincoln Center

Role Description

As Deputy Project Manager, Erik supports the Project Manager in overseeing all aspects of project delivery, including coordination of project teams, management of schedules and budgets, and communication with clients and stakeholders. His responsibilities include assisting with the development and implementation of project plans, monitoring progress to ensure alignment with project goals, and facilitating the resolution of issues as they arise. Erik helps maintain project documentation, supports quality and safety initiatives, and ensures effective collaboration among all project participants to achieve successful project outcomes.

Select Experience

Mission Rock

SAN FRANCISCO, CA • SR. PROJECT MANAGER • $448M • MIXED-USE

Mission Rock is a 28-acre mixed-use development with 315,000 SF of building area for Parcel F, including a 254-unit residential tower (96 affordable units), retail, and stepped terrace design. The project also includes 28 acres of horizontal infrastructure, demolition, excavation, dewatering, site preparation, and landscaping. The development emphasizes sustainability (targeting LEED Gold), community integration, and complex utility and logistics coordination.

Zuckerberg San Francisco General Hospital & Trauma Center

SAN FRANCISCO, CA • PROJECT ENGINEER • $707.7M • HOSPITAL

Ground-up, Type I concrete and steel hospital and research project valued at $707.7M. This CMAR, CM-GC, and IPD project totals 442,000 SF across one structure with eight levels above grade plus a mechanical penthouse and two levels below grade. It includes 284 beds, a 40,000 SF emergency room, a 20,000 SF radiology department, 13 operating rooms, and units for intensive care, critical care, neonatal intensive care, forensic services, obstetrics, pediatrics, sterile processing, pharmacy, laboratory, pulmonary function, biomedical, morgue, and autopsy. Webcor self-performed concrete. This project is LEED Gold®.

Diane B. Wilsey Center for Opera

SAN FRANCISCO, CA • PROJECT MANAGER • $15.7M • CULTURAL

Historic renovation and tenant improvement of a Type I concrete cultural center. The 55,162 SF GMP project spans the fourth floor and basement of the War Memorial Veterans Building, including a flexible theater, performance and rehearsal space, an education studio, public opera archives, galleries, and administrative offices. It consolidates most of the company's operations into one campus. This project is LEED Gold®.

DESIGN MANAGER

David Mulvey



Years in Industry

27

Years with Firm

9

Education

» **BS, Environmental Planning & Design**
Rutgers University

Certifications

» AIA
» DBIA
» ISA Certified Arborist

Additional Experience

» UC Santa Barbara San Benito Housing
» Condemned Inmate Complex
» Verizon Data Center/Telecom

Role Description

As Design Manager, David serves as the key liaison between Webcor and design teams, orchestrating collaboration among architects, engineers, consultants, and trade partners to deliver cohesive, buildable designs that align with client goals, project standards, and stakeholder expectations. He specializes in constructability reviews, design-assist partner coordination, and phased delivery strategies, ensuring seamless transitions from preconstruction through execution. David's leadership ensures that project solutions are innovative, cost- and schedule-conscious, and compliant with all regulatory and safety requirements, while fostering a culture of inclusion, adaptability, and accountability.

Select Experience

Salesforce Transit Center

SAN FRANCISCO, CA • DESIGN MANAGER • $1.5B • TRANSPORTATION/CIVIC

Ground-up, Type I concrete and steel transportation and recreation project totaling 1,162,700 SF with four levels above grade and two below. The largest transit center in the country, it spans four city blocks and includes a four-story steel structure, above-grade bus level, concourse, ground floor, and two below-grade rail levels for future Caltrain and California High Speed Rail. Features a 5.4-acre public rooftop park and an 1,800-foot bus ramp with cable-stay bridge. LEED Gold certified.

UC Merced 2020 Expansion

MERCED, CA • DESIGN MANAGER • $1.2B • MIXED-USE

Ground-up, Type II–V concrete and steel mixed-use Design-Build/P3 project totaling 1,177,124 SF across 14 structures. The expansion supports a population of 10,000 students and includes academic, research, instructional, student life, health, dining, recreational, and residential facilities (1,700 beds), as well as extensive outdoor and athletic spaces. Webcor self-performed concrete, carpentry, building specialties, doors, frames, and finish hardware. This project is LEED Platinum®.

SFO ITB Roof Upgrade Project

SAN FRANCISCO, CA • DIRECTOR • $100M • AVIATION/ TRANSPORTATION

2,500,000 SF comprehensive effort to restore and fortify the façade against the elements and improve energy performance. Similarities to the LAX Departures Curbside Refresh Project include replacing the roof membrane and waterproofing system at the façade, removing corrosion on exposed exterior steel, and overhauling the façade access system. To ensure public safety, Webcor built pedestrian walkways to maintain access during daytime work, while performing hazardous tasks at night.

CONSTRUCTION MANAGER

Tom George



Years in Industry

41

Years with Firm

26

Education

» **Construction Management**
Diablo Valley College

Certifications

» OSHA 30
» First Aid/CPR
» Lighthouse Leadership Training
» Risk Management for Senior Leaders

Additional Experience

» Genesis Marina
» Contra Costa County Administration Building
» Meta at Park Tower
» Isle House
» Portico Oakland Waterfront
» UC Berkeley Housing Project No. 2
» UCSB San Benito Housing
» Bay Meadows Stations 1-5
» BlackLine Pleasanton

Role Description

As Construction Manager, Tom is the highest-level field leader who orchestrates construction field operations. He works with the Project Director, client, and design team to ensure field operations fulfill the overall project goals. Tom organizes, mobilizes, and directs project personnel and coordinates the efforts of trade partners and other organizations involved. He oversees field and public safety, quality, schedule, logistics, and manpower. Tom's complex project experience gives him the tools to identify technical issues early and implement appropriate courses of action for unforeseen challenges in the field.

Select Experience

Moscone Center Expansion

SAN FRANCISCO, CA • SR. CONSTRUCTION MANAGER • $470M • HOSPITALITY

Type I steel hospitality expansion project with a construction cost of $470.1 M. This CMAR project involved reconfiguring the convention center's North and South Exhibit Halls to increase exhibition space, resulting in a total expansion area of 350,000 SF, with four levels above grade and one level below grade. The project increased contiguous exhibition space, ballroom, meeting room, retail and support spaces. Webcor self-performed concrete and carpentry. This project is LEED Platinum®.

Mission Rock

SAN FRANCISCO, CA • INTERIORS LEAD • $448M • MIXED-USE

Mission Rock is a 28-acre mixed-use development with 315,000 SF of building area for Parcel F, including a 254-unit residential tower (96 affordable units), retail, and stepped terrace design. The project also includes 28 acres of horizontal infrastructure, demolition, excavation, dewatering, site preparation, and landscaping. The development emphasizes sustainability (targeting LEED Gold), community integration, and complex utility and logistics coordination.

SFO Consolidated Administration Campus

SAN FRANCISCO, CA • CONSTRUCTION MANAGER • $81M • AVIATION

Ground-up, Type I steel commercial office totaling 136,000 SF. The CAC brings together administrative and technical departments with direct access to landside, terminal, and airside operations. The project prioritized early stakeholder engagement and structured partnering with SFO to support collaboration. Located near active airport operations, it required careful coordination to avoid disruption. Strong LBE/DBE participation contributed to its success. This project is LEED Gold®.

QUALITY PROGRAM MANAGER

Evan Sims



Years in Industry

23

Years with Firm

20

Education

» **BS, Manufacturing Engineering**
California Polytechnic State University, San Luis Obispo

Certifications

» OSHA 30
» First-Aid/AED/CPR
» LEED GA
» NFPA 70 E Arc Flash
» Hazwoper 40
» Lead Awareness

Additional Experience

» The Zuckerberg San Francisco General Hospital & Trauma Center
» Genesis Marina
» UC Berkeley Lawrence Berkeley National Lab Buildings
» Moscone Center Expansion
» SFMOMA Expansion
» Mission Rock

Role Description

As Quality Program Manager, Evan is responsible for developing and maintaining project-specific Quality Control (QA/QC) plans. He oversees inspections and testing to ensure compliance with project requirements and applicable codes, coordinates quality activities across teams, and manages corrective actions for non-conforming work. Evan leads quality meetings, provides training on quality processes, and maintains documentation to support successful project delivery.

Select Experience

SFO International Terminal Customer Hospitality Boarding Areas A&G

SAN FRANCISCO, CA • SR. SUPERINTENDENT • $32.6M • AVIATION

Ground-Up, Type I aviation project with a construction cost of $32.6 M.

This Design-Build project totals 43,005 SF throughout one structure. The interim project involved a fast-track strategic refresh of pre-security food courts (ten concessionaires) and five public concourse areas in Boarding Areas A and G, entailing ceiling, lighting, and furnishing improvements in the food court areas as well as new seating, planting, and convenience power in the concourse areas.

UC San Francisco Wayne and Gladys Valley Center for Vision

SAN FRANCISCO, CA • SR. SUPERINTENDENT • $186.6M • HEALTH/SCIENCE

Ground-up, Type I concrete mixed-use project totaling 347,500 SF with a 12-level tower, five-level south wing, and three-level north wing with a rooftop garden. The OSHPD Level 3 facility houses academic research, administrative space, clinics, teaching laboratories, and meeting facilities. LEED Gold certified. Designed by SmithGroupJJR, the center integrates research, clinical, and educational functions for vision sciences, including the Koret Vision Clinics and Proctor Foundation Clinics, and features patient-centered design and advanced ophthalmology services.

SFPUC Biosolids Digester

SAN FRANCISCO, CA • SR. SUPERINTENDENT • $2B • INFRASTRUCTURE

Infrastructure and ground-up construction for the relocation and replacement of the Southeast Water Treatment Plant (SEP), the SFPUC's largest wastewater treatment facility, which treats 80% of San Francisco's sewage and stormwater flows. The $1.4B, 400,000 SF new campus is designed to produce higher-quality "Class A" biosolids, effectively capture noise and reduce odors, maximize biogas use and energy recovery, and strengthen seismic and climate change resilience.

PROJECT SAFETY REPRESENTATIVE

Kevin Kwit



Years in Industry

16

Years with Firm

10

Certifications

- OSHA 500
- Identifying & Ctrl. Elec. Hazards
- Fall Prot. Reg.
- Elec. Safe Work Practices
- Confined Space Aware
- OCIP Risk Mgmt.
- Supv. Trng. Drug & Alcohol
- Substance Abuse Trng
- Crosby Rigging/Trainer Course
- First-Aid/CPR

Additional Experience

- Contra Costa County Administration Building ADR
- OAK T1 Restroom Upgrade
- Reno ConRAC
- UC Merced Expansion
- Facebook at Park Tower
- Oakland Parcel J
- SJSU Spartan Athletics Center
- Portico Oakland Waterfront

Role Description

As Project Safety Representative, Kevin will provide day-to-day safety support to leadership and operating teams to ensure a consistent and effective approach on the project. This includes developing and enforcing corporate safety and health policies, reviewing site-specific safety plans, conducting regular safety meetings and job site inspections, investigating incidents and managing corrective actions, and training and mentoring Site Safety Managers, project staff, and trade partners. Kevin will play a critical role in the preconstruction process by pre-planning and assessing possible risks and challenges. His commitment to safety initiatives reduces risk and raises safety awareness.

Select Experience

SFPUC Biosolids Digester

SAN FRANCISCO, CA • SR. SAFETY MANAGER • $2B • INFRASTRUCTURE

Infrastructure and ground-up construction for the relocation and replacement of the Southeast Water Treatment Plant (SEP), the SFPUC's largest wastewater treatment facility, which treats 80% of San Francisco's sewage and stormwater flows. The $2 B, 400,000 SF new campus is designed to produce higher-quality "Class A" biosolids, effectively capture noise and reduce odors, maximize biogas use and energy recovery, and strengthen seismic and climate change resilience..

Newark Civic Center

NEWARK, CA • SR. SAFETY MANAGER • $75 M • CIVIC

Ground-up, type II-B steel commercial project with a construction cost of $75 M. This design-build project totals 204,505 SF. This project transforms an existing administration building into a revitalized city hall featuring an administration tower upgrade, library expansion, and state-of-the-art police building addition. The new police building consolidates all station operations to a single facility. The project also added a new public plaza/multi-function community event space. Webcor self-performed concrete, drywall, and carpentry. This project is LEED Silver®.

Moscone Center Expansion

SAN FRANCISCO, CA • SR. SAFETY MANAGER • $470M • HOSPITALITY

Type I steel hospitality expansion project with a construction cost of $470 M. This CMAR project involved reconfiguring the convention center's North and South Exhibit Halls to increase exhibition space, resulting in a total expansion area of 350,000 SF, with four levels above grade and one level below grade. The project increased contiguous exhibition space, ballroom, retail and support spaces. Webcor self-performed concrete and carpentry. This project is LEED Platinum®.

Tab D

~~Initial Schedule &~~ Schedule Narrative



SFPUC Headquarters
San Francisco, CA

Schedule Narrative

Webcor approaches the Potrero Yard Modernization project with a proven, disciplined scheduling methodology that blends precision tools with people-driven planning. Using Oracle Primavera P6 and the Critical Path Method, Webcor has developed a schedule that is constructible to Substantial Completion but also agile enough to adapt to the complexities of a high-profile project. The schedule represents an intricately thought out approach, our understanding of the project scope and technical requirements.

Project Approach

The project begins with deliverables leading up to financial close. With financing in place, design development advances to support key permit applications, ensuring regulatory approvals are aligned with the construction timeline. Concurrently, coordination with SFMTA proceeds to vacate the site, clearing transit infrastructure and enabling access for make ready work. Utilities investigation work commences immediately following NTP 1.

Once the site is accessible, make-ready activities commence. Key mobilization work includes soil profiling to inform foundation design, along with offsite work such as Rule 20 utility undergrounding and relocation of the Overhead Contact System (OCS), which prepares the surrounding infrastructure for construction. During this time, temporary utilities will be made available to minimize mobilizations for offsite interfaces.

Following completion of make-ready work and necessary permits, abatement and demolition begin, removing hazardous materials and existing structures to clear the site for new development. Construction progresses through substructure and superstructure phases, establishing the building's foundation and vertical framework. As the structure tops out, efforts shift toward enclosing the building to achieve a water-tight condition, allowing interior systems work to proceed.

With the building water tight, permanent power is brought online and systems start-up begins, initiating commissioning of mechanical, electrical, and life safety systems. The project concludes with final inspections, securing occupancy approvals and confirming compliance with all regulatory and code requirements.

The overall duration spans just short of 4 years between NTP 2 and Substantial Completion, with early phases focused on permit packages, site investigations and utility relocations. Substantial Completion is forecasted for June 5, 2030. Construction sequencing is optimized to maintain access and safety for the surrounding community.

Key Permit Workflows

Permitting and agency approvals have been incorporated into the project schedule to reflect the timelines required for on-time completion. Permit durations were established based on input from the project's permitting consultant and have been logically sequenced as predecessors to the respective tasks they govern. In addition to DBI permits and associated addendums, the schedule includes key permits from BAAQMD, Tower Crane operations, Tree Removal, and special traffic control, as these are critical drivers of project progress.

PG&E

Key PG&E-related scopes include Rule 20 undergrounding of overhead electrical lines and installation of a permanent power feed from the Potrero Power Station.

Completion of Rule 20 is a prerequisite for the demolition of the existing tower and the installation of shoring systems, due to associated electrical hazards. This work is scheduled to commence following Notice to Proceed 2 (NTP 2) and must be completed prior to demolition activities.

To support the electrical demands of the new Potrero Yard, a permanent power feed will be installed from the Potrero Power Station. This scope will run concurrently with onsite construction and will terminate at electrical vaults located along 17th Street. Once the new feed is energized, it will enable issuance of the electrical green tag required for start-up and commissioning activities.

Schedule Work Breakdown Structure

The schedule is organized into five major lifecycle phases, which are identified as:

1. Contracting & Conditions Precedence
2. Design & Permitting
3. Procurement
4. Make Ready
5. Construction

Webcor's Schedule Management: What Sets Us Apart

Webcor's planning is rooted in communication, proactive coordination and continuous intelligence gathering. From day one, our team prioritizes stakeholder alignment, interdisciplinary collaboration, and early decision-making. What distinguishes Webcor is our ability to turn the schedule into a dynamic tool that drives project success, identifies risks, not just tracks it.

Key elements of our planning approach include:

EARLY ENGAGEMENT & KICKOFF

Webcor conducts key subcontractor coordination meetings to establish workflows, define milestones, identify constraints and align on project goals. These sessions are typically held in colocation environments to foster real-time collaboration and establish participation from the people responsible for building the project.

INTEGRATED WORKFLOWS

We implement logistics strategies, submittals and permit roadmaps early in the process. This forward planning process supports early identification of long lead items, permit challenges and market drive procurement risks. These workflows are designed to support efficiency and ensure seamless transitions between project stages.

LEAN SCHEDULING PRACTICES

Webcor incorporates pull planning and daily stand-ups to maintain short-interval control. This multi-lens approach ensures that critical milestones are monitored and work is calibrated to stay on course.

CONSTRUCTABILITY & QUALITY ASSURANCE

Our team is constantly reviewing our schedule to ensure alignment with design progression and subcontractor feedback. This is to ensure that the schedule is aligned and our planned approach is realistic, achievable and most importantly predictable.

MANAGEMENT OF CHANGES

Webcor understands change is a reality in construction based on unplanned occurrences. Our agile scheduling framework identifies the origin of changes, evaluates potential impacts and proposes actionable solutions. This ensures stakeholders are informed and empowered to make timely decisions.

TRANSPARENCY & OWNERSHIP

We believe in a "project schedule, not Webcor's schedule." This mindset fosters shared accountability and keeps all parties aligned on progress and priorities to achieve Substantial Completion and delivery the product to our client.

Conclusion

Webcor's schedule is more than a timeline, it's a strategic framework for project success. Through communication, continuous planning and stakeholder engagement, Webcor aims to deliver the Potrero Yard Modernization project on time and without defects or injury. The schedule reflects a commitment to excellence, adaptability and respect for the project's civic significance.

2. Basis Of Estimate

2.1. Estimate Methodology

The cost estimate has been developed using the following:

a. Subcontractor Pricing – Competitively bid by specialty contractors for each Work Package (please refer to Section 2.4 for list of Work Packages)

b. Webcor Internal Estimating

2.2. Information Used

The following key information has been used to develop the scope of this cost estimate:

a. Exhibit 18 SFMTA Technical Requirements dated 10/31/2025

b. Arcadis VE Drawings dated 10/10/2025

c. MKA VE Drawings dated 08/25/2025

d. Façade VE Mark Ups dated 10/22/2025

Please reference the attached Exhibit A for a full list of documents used.

2.3. Work Breakdown Structure

The estimate is organized and presented in MasterFormat. A presentation in an alternate WBS is available on request.

2.4. Specialty Contractor Work Breakdown Structure

The table below provides the current Work Package breakdown and method of estimating:

Work Package #	Description	Estimating Method
WP-01	Demolition & Abatement	Subcontractor Bids
WP-03	Shoring & Dewatering	Subcontractor Bids
WP-04	Structural Concrete	Subcontractor Bids
WP-04.1	Rebar	Subcontractor Bids

Work Package #	Description	Estimating Method
WP-04.2	Viscous Dampers	Subcontractor Bids
WP-04.3	Tower Cranes	Subcontractor Bids
WP-07	Unit Masonry	Subcontractor Bids
WP-09	Misc Metals, Custom Stairs, Railing, Metal Decking	Internally Estimated w/ Subcontractor Input
WP-10	Pre-Engineered Metal Stairs	Subcontractor Bids
WP-13	Carpentry Services (Millwork, DFH, Specialties, Interior Glazing, Overhead Coiling Doors)	Subcontractor Bids
WP-16	Interior & Exterior Framing, Drywall, Insulation	Subcontractor Bids
WP-18	Below Grade Waterproofing	Subcontractor Bids
WP-19	Above Grade Waterproofing & Pavers	Subcontractor Bids
WP-20	Caulking & Joint Sealants	Internally Estimated
WP-21	Smoke Curtains	Internally Estimated
WP-22	Curtain Wall Systems & Exterior Metal Panels	Subcontractor Bids
WP-26	Sheet Metal Flashing & Trim, Louvers & Vents	Internally Estimated
WP-32	ACT & Specialty Ceilings	Subcontractor Bids
WP-33	Carpet, Resilient Flooring, Polished Concrete	Subcontractor Bids
WP-35	Tiling	Subcontractor Bids
WP-37	Painting & Wall Coverings	Subcontractor Bids
WP-39	Signage / Environmental Graphics	Subcontractor Bids
WP-42	Window Treatments & Interior Blinds	Internally Estimated
WP-43	Loading Dock Equipment	REMOVED
WP-44	Parking Control Equipment	Internally Estimated
WP-45	Operable Partitions	Subcontractor Bids
WP-46	Building Façade Maintenance Equipment	Subcontractor Bids
WP-50	Vehicle Maintenance Systems & Equipment	Subcontractor Bids
WP-51	Appliances	Internally Estimated
WP-52	Elevators	Subcontractor Bids
WP-53	Fire Suppression	Subcontractor Bids

Work Package #	Description	Estimating Method
WP-54	Plumbing	Subcontractor Bids
WP-56	HVAC & Controls	Subcontractor Bids
WP-57	Electrical & Low Voltage	Subcontractor Bids
WP-58	Trash Chutes & Compactors	Subcontractor Bids
WP-59	Mass Excavation & Filling	Subcontractor Bids
WP-60	Asphalt Paving, Paving Specialties & Striping	Subcontractor Bids
WP-62	Streetscape Improvements (Site Concrete & Pavers)	Subcontractor Bids
WP-66	Landscaping & Irrigation	Subcontractor Bids
WP-67	Fencing	Subcontractor Bids
WP-71	Wet Utilities	Subcontractor Bids
WP-72	Dry Utilities	Subcontractor Bids
WP-74	Final Cleaning	Internally Estimated
WP-76	Green Wall	DELETED PER ACCEPTED VE
WP-77	Existing Garage Move Out	Subcontractor Bids

Note: All Work Package estimates include escalation.

2.5. Allowances

a) **Utility Work** – At this time the following utility scope is assumed to be an allowance.
   i. Undergrounding Existing PG&E Powerline
   ii. New PG&E Service
   iii. New Outside OCS Work

b) **New Inside OCS Work exclusive of Interior OCS Work related to design & engineering**

2.6. GCs/GRs/Preconstruction

Includes:

a) GC preconstruction staffing

b) GC construction phase staffing and associated temporary office

c) Personnel hoists and operators.
d) Field labor
e) Dumpsters
f) Forklifts and telehandlers
g) Fencing and security
h) Winterization and weather protection
i) Utility use fees

2.7. Design Contingency

a) Pre Permit (4.46%): For design development to the point of securing permits
b) Post Permit (During Construction) (2.00%): For design development during the construction phase. Excludes significant changes to program and schedule.
c) All design contingency excludes client initiated changes.

2.8. Contractors Contingency

For GC's construction operational risks and unforeseen work (eg. overtime, trade damage, additional protection, procurement scope gaps).

2.9. Permits and AHJ Fees

Includes:

a) Permit and Plan Check Fees
b) Road Closure Permits
c) BAAQMD Permits
d) Encroachment Permit

2.10. Arcadis Design Fees

AOR Design Services and associated Subconsultants

2.11. 3rd Party Consultants & Peer Reviews

Includes Professional Services direct to Design Builder (e.g. Geotech, Peer Reviews, MMRP Consultant, SWPPP Consultant, SBE Consultant)

2.12. Testing and Inspection Fees

Includes code required special inspections and material testing

2.13. Insurances & Bonds

Includes variety of insurances and securities including the following:

a) Subcontractor Default Insurance
b) CCIP
c) Difference In Coverage (DIC)
d) Builder's Risk Insurance
e) CPPI
f) Payment & Performance Bond
g) Parent Company Guarantee

2.14. SF GRT

City of San Francisco tax applicable for all construction work.

SFMTA Potrero Bus Yard

MasterFormat Summary

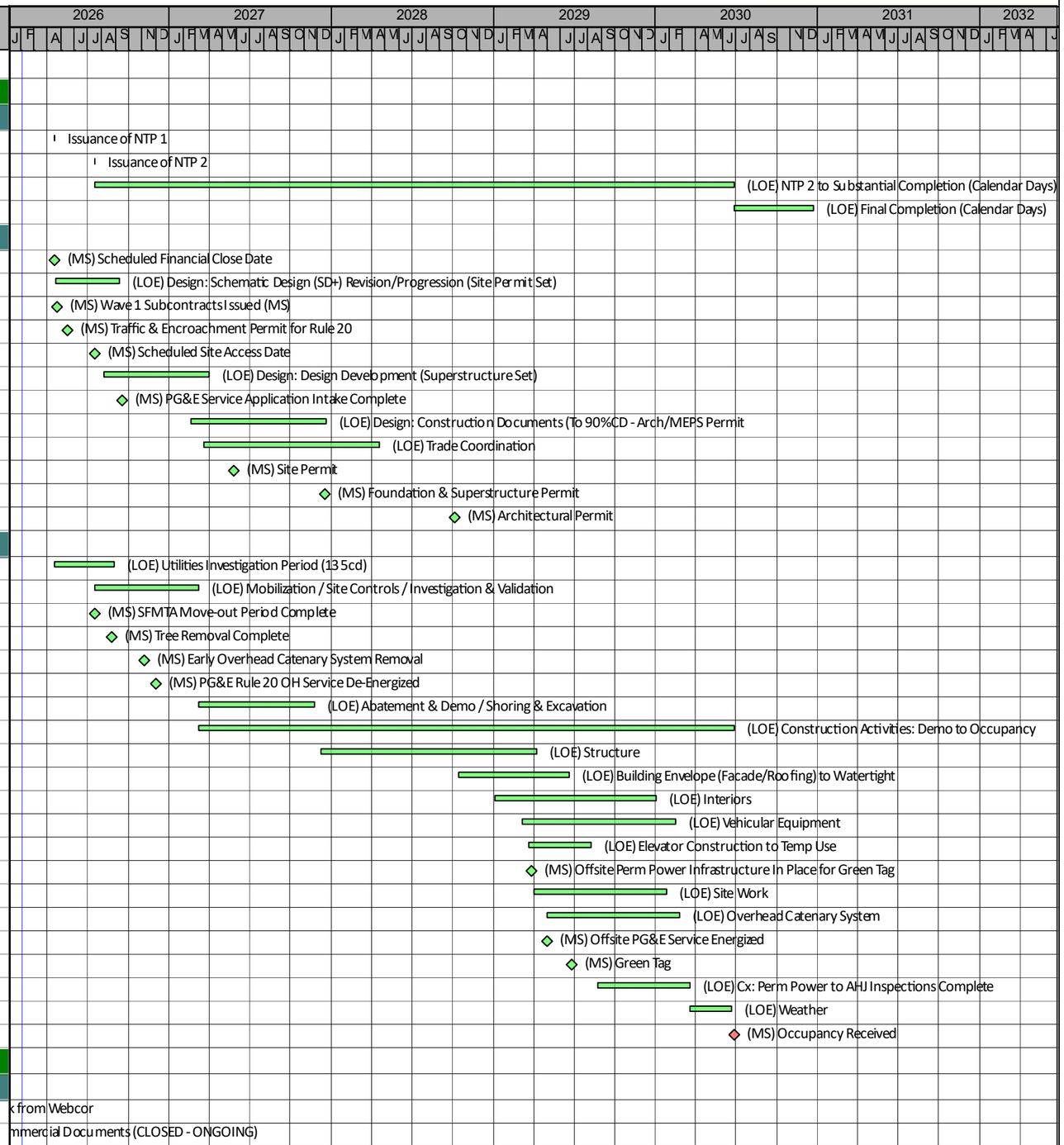
Date: 02/17/2026

			2/17/2026 Fixed Final Price R2	
A.1		Division 01 - General Conditions	$ 6,440,955	
A.2		Division 02 - Existing Conditions	$ 5,031,250	
A.3		Division 03 - Concrete	$ 87,298,504	
A.4		Division 04 - Masonry	$ 7,687,178	
A.5		Division 05 - Metals	$ 22,141,640	
A.6		Division 06 - Woods, Plastics, Composites	$ 1,284,934	
A.7		Division 07 - Thermal & Moisture Protection	$ 16,595,104	
A.8		Division 08 - Openings	$ 12,186,521	
A.9		Division 09 - Finishes	$ 15,397,306	
A.10		Division 10 - Specialties	$ 9,514,557	
A.11		Division 11 - Equipment	$ 12,111,378	
A.12		Division 12 - Furnishings	$ 683,256	
A.13		Division 14 - Conveying Equipment	$ 10,339,866	
A.14		Division 21 - Fire Suppression	$ 7,204,650	
A.15		Division 22 - Plumbing	$ 25,497,816	
A.16		Division 23 - HVAC	$ 19,807,024	
A.17		Division 26 - Electrical	$ 46,093,366	
A.18		Division 27 - Communications	$ 26,364,787	
A.19		Division 28 - Fire Alarm & Security	$ 8,541,074	
A.20		Division 31 - Earthwork	$ 18,236,174	
A.21		Division 32 - Exterior Improvements	$ 2,735,378	
A.22		Division 33 - Utilities	$ 7,929,080	
A.23		**Sub-total (0)**	**$ 369,121,797**	
B.1		FF&E Allowance	By Plenary	
B.2		IT Allowance	By Plenary	
B.3		Undergrounding Existing PG&E Powerline Allowance	$ 2,624,044	
B.4		New PG&E Service Allowance	$ 13,869,877	
B.5		New Outside OCS Work Allowance	$ 8,040,000	
B.5.1		Remove Outside OCS Demo from Allowance / Carried in WP-72	Included Above	
B.6		New Inside OCS Work Allowance	$ 18,000,000	
B.6.1		**WP-09 | Misc Metals:** Move OCS Channel Support from Allowance	Included in Direct	
B.7		SBE Risk	$ 205,000	
C		GCs/GRs	$ 60,117,393	
D		**Sub-total (1)**	**$ 475,453,189**	
E	4.45%	Design Contingency - Pre Permit	$ 16,378,428	**See 'Pre-Permit Contingency' Matrix**
F	2.00%	Design Contingency - Post Permit	$ 7,382,436	**On A Only**
G	2.70%	Contractor's Contingency	$ 11,589,458	**On A & C**
H		**Sub-total (2)**	**$ 507,328,433**	
J		Permit and AHJ Fees	$ 4,676,896	
K		Arcadis Design Fees	$ 30,803,488	
L		3rd Party Consultants & Peer Reviews	$ 3,929,390	
M		Testing and Inspection Fees	$ 1,615,998	
N	5.68%	Design Services Contingency	$ 2,328,558	**On J, K, L, M**
P		**Sub-total (3)**	**$ 550,682,763**	
Q	1.30%	SDI on Subcontractors	$ 5,354,189	**On A & B**
R		SDI Adjustment for Self Perform	$ (437,691)	
S		**Sub-total (4)**	**$ 555,599,262**	
T	5.50%	DB Fee	$ 33,775,885	**On AE**
U		**Sub-total (5)**	**$ 589,375,147**	
V	1.72%	CCIP/DIC	$ 8,743,153	**On H**
W	0.58%	DIC	$ 3,561,821	**On AE**
X	0.64%	Builder's Risk	$ 3,929,822	**On H**
Y	0.21%	CPPI	$ 1,065,390	**On H**
Z		**Sub-total (6)**	**$ 606,675,332**	
AA	0.55%	P&P Bond	$ 3,377,589	**On AE**
AB	0.35%	Parent Guarantee	$ 2,149,375	**On AE**
AC		**Sub-total (7)**	**$ 612,202,295**	
AD	0.31%	SF GRT	$ 1,903,732	**On AE**
AE		**GRAND TOTAL (1)**	**$ 614,107,000**	
		Negotiated Deduct:	$ (2,000,000)	
			$ 612,107,000	

Potrero Yard Modernization
Final Initial Schedule

WEBCOR

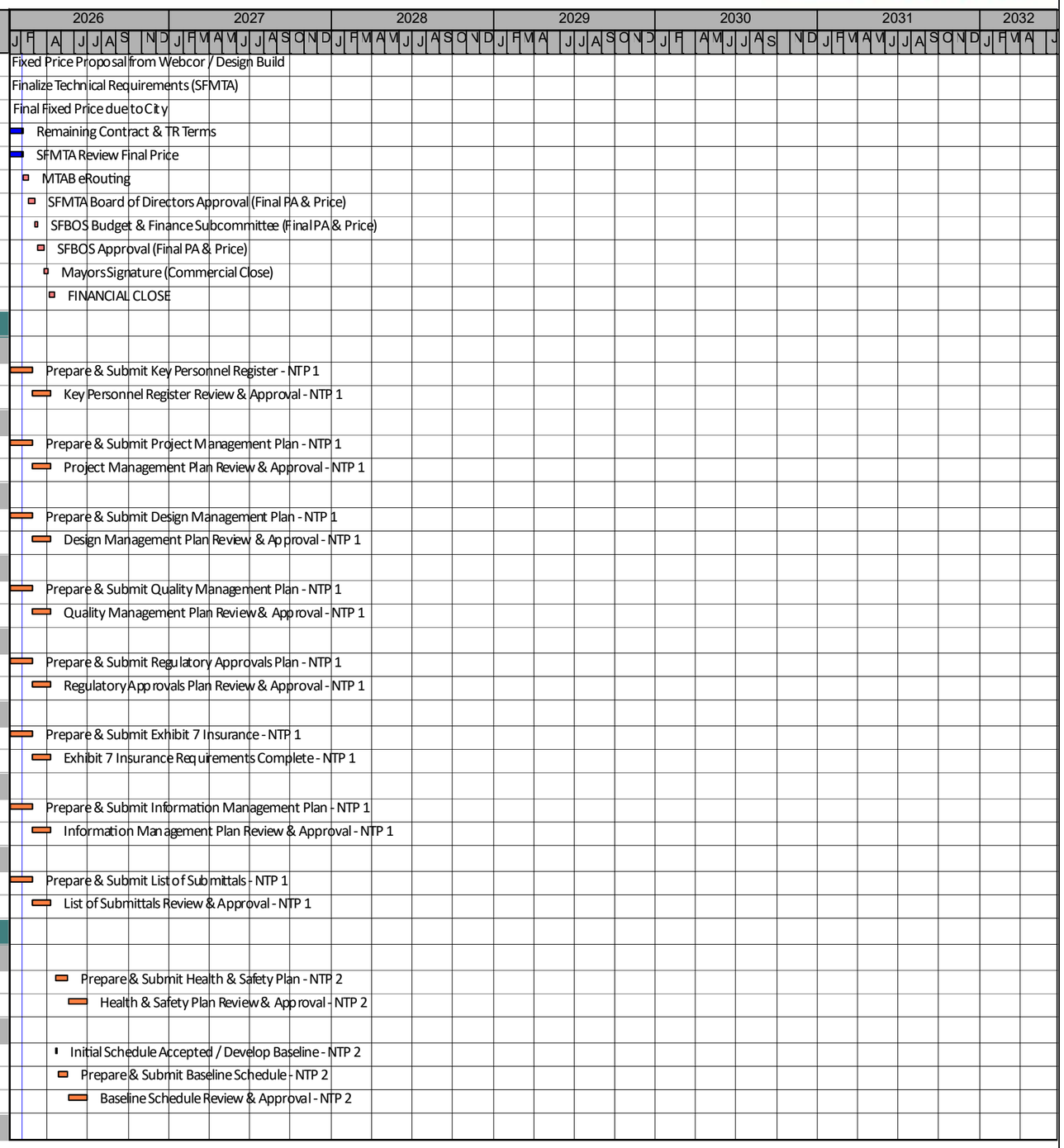
#	Activity Name	OD	Start	Finish
1	**Potrero Yard Modernization - Initial Schedule**	1413	Jan-13-25 A	Dec-23-30
2	**Summary**	1178	Apr-17-26	Dec-23-30
3	**Contract**	1712	Apr-17-26	Dec-23-30
4	Issuance of NTP 1	1	Apr-17-26	Apr-17-26
5	Issuance of NTP 2	1	Jul-16-26	Jul-16-26
6	(LOE) NTP 2 to Substantial Completion (Calendar Days)	1442	Jul-16-26	Jun-26-30
7	(LOE) Final Completion (Calendar Days)	180	Jun-27-30	Dec-23-30
8	**Preconstruction Summary**	622	Apr-17-26	Oct-05-28
9	(MS) Scheduled Financial Close Date	0		Apr-17-26
10	(LOE) Design: Schematic Design (SD+) Revision/Progression (Site Permit Set)	100	Apr-20-26	Sep-09-26
11	(MS) Wave 1 Subcontracts Issued (MS)	0		Apr-24-26
12	(MS) Traffic & Encroachment Permit for Rule 20	0		May-15-26
13	(MS) Scheduled Site Access Date	0		Jul-16-26
14	(LOE) Design: Design Development (Superstructure Set)	165	Aug-05-26	Apr-01-27
15	(MS) PG&E Service Application Intake Complete	0		Sep-15-26
16	(LOE) Design: Construction Documents (To 90%CD - Arch/MEPS Permit	212	Feb-19-27	Dec-20-27
17	(LOE) Trade Coordination	275	Mar-19-27	Apr-19-28
18	(MS) Site Permit	0		May-27-27
19	(MS) Foundation & Superstructure Permit	0		Dec-16-27
20	(MS) Architectural Permit	0		Oct-05-28
21	**Construction Summary**	1053	Apr-18-26	Jun-26-30
22	(LOE) Utilities Investigation Period (135cd)	135	Apr-18-26	Aug-30-26
23	(LOE) Mobilization / Site Controls / Investigation & Validation	161	Jul-16-26	Mar-08-27
24	(MS) SFMTA Move-out Period Complete	0		Jul-16-26
25	(MS) Tree Removal Complete	0		Aug-25-26
26	(MS) Early Overhead Catenary System Removal	0		Nov-06-26
27	(MS) PG&E Rule 20 OH Service De-Energized	0		Dec-01-26
28	(LOE) Abatement & Demo / Shoring & Excavation	183	Mar-09-27	Nov-23-27
29	(LOE) Construction Activities: Demo to Occupancy	831	Mar-09-27	Jun-26-30
30	(LOE) Structure	332	Dec-10-27	Apr-09-29
31	(LOE) Building Envelope (Facade/Roofing) to Watertight	170	Oct-13-28	Jun-19-29
32	(LOE) Interiors	250	Jan-05-29	Jan-03-30
33	(LOE) Vehicular Equipment	240	Mar-06-29	Feb-15-30
34	(LOE) Elevator Construction to Temp Use	100	Mar-20-29	Aug-08-29
35	(MS) Offsite Perm Power Infrastructure In Place for Green Tag	0	Mar-27-29	
36	(LOE) Site Work	205	Apr-03-29	Jan-25-30
37	(LOE) Overhead Catenary System	205	May-01-29	Feb-25-30
38	(MS) Offsite PG&E Service Energized	0		May-02-29
39	(MS) Green Tag	0		Jun-26-29
40	(LOE) Cx: Perm Power to AHJ Inspections Complete	140	Aug-23-29	Mar-18-30
41	(LOE) Weather	68	Mar-19-30	Jun-21-30
42	(MS) Occupancy Received	0		Jun-26-30*
43	**Preconstruction**	1058	Jan-13-25 A	Jul-25-29
44	**Contracting**	236	Jan-13-25 A	Apr-17-26
45	Initial Pricing Feedback from Webcor	34	Jan-13-25 A	Feb-28-25 A
46	Finalize Commercial Documents (CLOSED - ONGOING)	108	Jan-13-25 A	Jul-24-25 A



Potrero Yard Modernization
Final Initial Schedule

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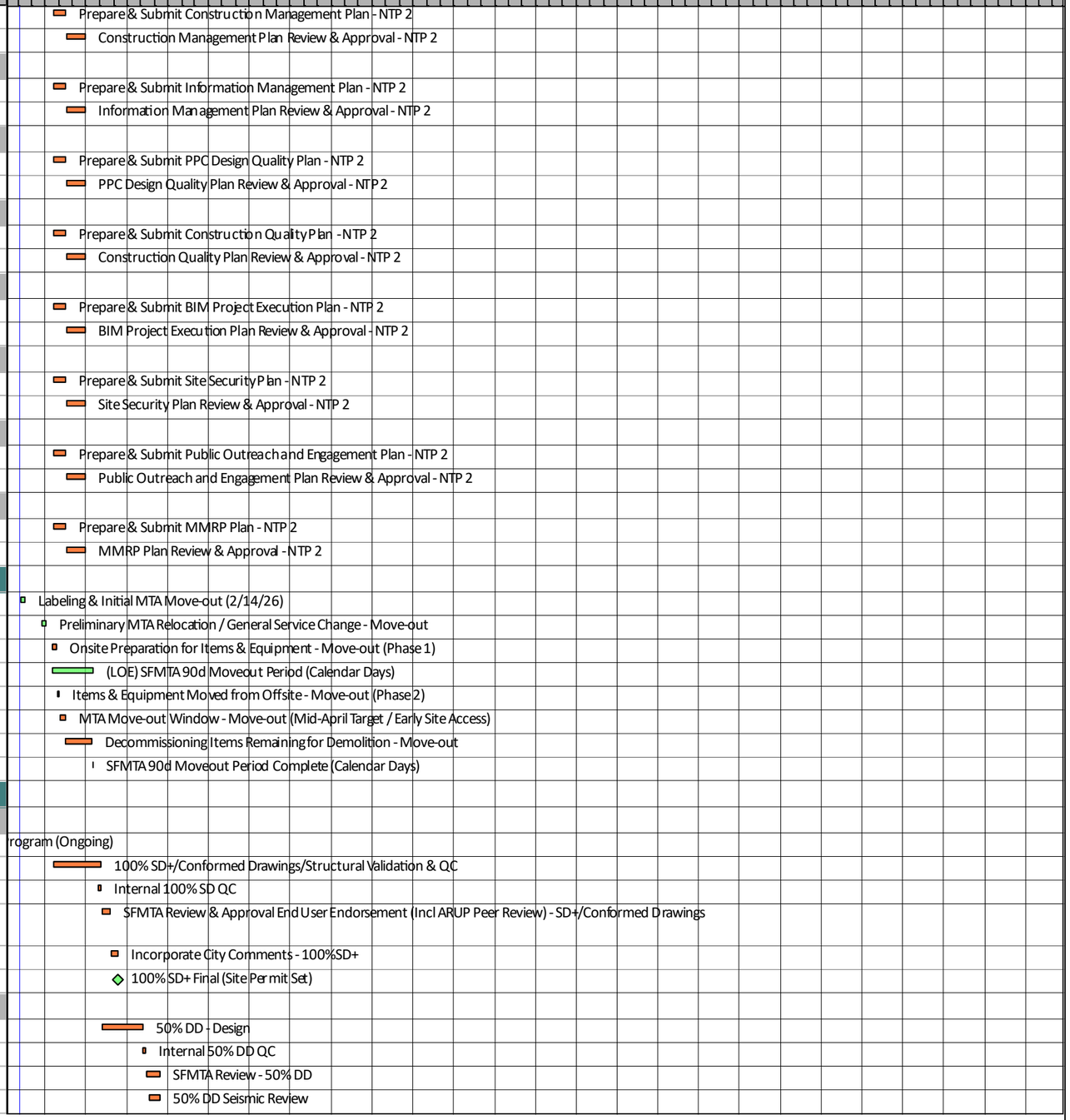
#	Activity Name	OD	Start	Finish
47	Fixed Price Proposal from Webcor / Design Build	56	May-02-25 A	Dec-12-25 A
48	Finalize Technical Requirements (SFMTA)	81	May-12-25 A	Dec-12-25 A
49	Final Fixed Price due to City	2	Dec-15-25 A	Dec-16-25 A
50	Remaining Contract & TR Terms	36	Dec-15-25 A	Feb-05-26
51	SFMTA Review Final Price	13	Dec-17-25 A	Feb-05-26
52	MTAB eRouting	8	Feb-06-26	Feb-18-26
53	SFMTA Board of Directors Approval (Final PA & Price)	9	Feb-19-26	Mar-03-26
54	SFBOS Budget & Finance Subcommittee (Final PA & Price)	6	Mar-04-26	Mar-11-26
55	SFBOS Approval (Final PA & Price)	10	Mar-11-26	Mar-24-26
56	Mayors Signature (Commercial Close)	8	Mar-25-26	Apr-03-26
57	FINANCIAL CLOSE	10	Apr-06-26	Apr-17-26
58	**NTP 1 Conditions**	65	Jan-08-26 A	Apr-09-26
59	**Key Personnel Register**	65	Jan-08-26 A	Apr-09-26
60	Prepare & Submit Key Personnel Register - NTP 1	20	Jan-08-26 A	Feb-26-26
61	Key Personnel Register Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
62	**Project Management Plan**	65	Jan-08-26 A	Apr-09-26
63	Prepare & Submit Project Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
64	Project Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
65	**Design Management Plan**	65	Jan-08-26 A	Apr-09-26
66	Prepare & Submit Design Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
67	Design Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
68	**Quality Management Plan**	65	Jan-08-26 A	Apr-09-26
69	Prepare & Submit Quality Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
70	Quality Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
71	**Regulatory Approval Plan**	65	Jan-08-26 A	Apr-09-26
72	Prepare & Submit Regulatory Approvals Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
73	Regulatory Approvals Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
74	**Exhibit 7 Insurance**	65	Jan-08-26 A	Apr-09-26
75	Prepare & Submit Exhibit 7 Insurance - NTP 1	20	Jan-08-26 A	Feb-26-26
76	Exhibit 7 Insurance Requirements Complete - NTP 1	30	Feb-27-26	Apr-09-26
77	**Information Management Plan**	65	Jan-08-26 A	Apr-09-26
78	Prepare & Submit Information Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
79	Information Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
80	**List of Submittals**	65	Jan-08-26 A	Apr-09-26
81	Prepare & Submit List of Submittals - NTP 1	20	Jan-08-26 A	Feb-26-26
82	List of Submittals Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
83	**NTP 2 Conditions**	50	Apr-20-26	Jun-29-26
84	**Health & Safety Plan**	50	Apr-20-26	Jun-29-26
85	Prepare & Submit Health & Safety Plan - NTP 2	20	Apr-20-26	May-15-26
86	Health & Safety Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
87	**Baseline Schedule**	50	Apr-20-26	Jun-29-26
88	Initial Schedule Accepted / Develop Baseline - NTP 2	5	Apr-20-26	Apr-24-26
89	Prepare & Submit Baseline Schedule - NTP 2	15	Apr-27-26	May-15-26
90	Baseline Schedule Review & Approval - NTP 2	30	May-18-26	Jun-29-26
91	**Construction Management Plan**	50	Apr-20-26	Jun-29-26



Potrero Yard Modernization
Final Initial Schedule

WEBCOR

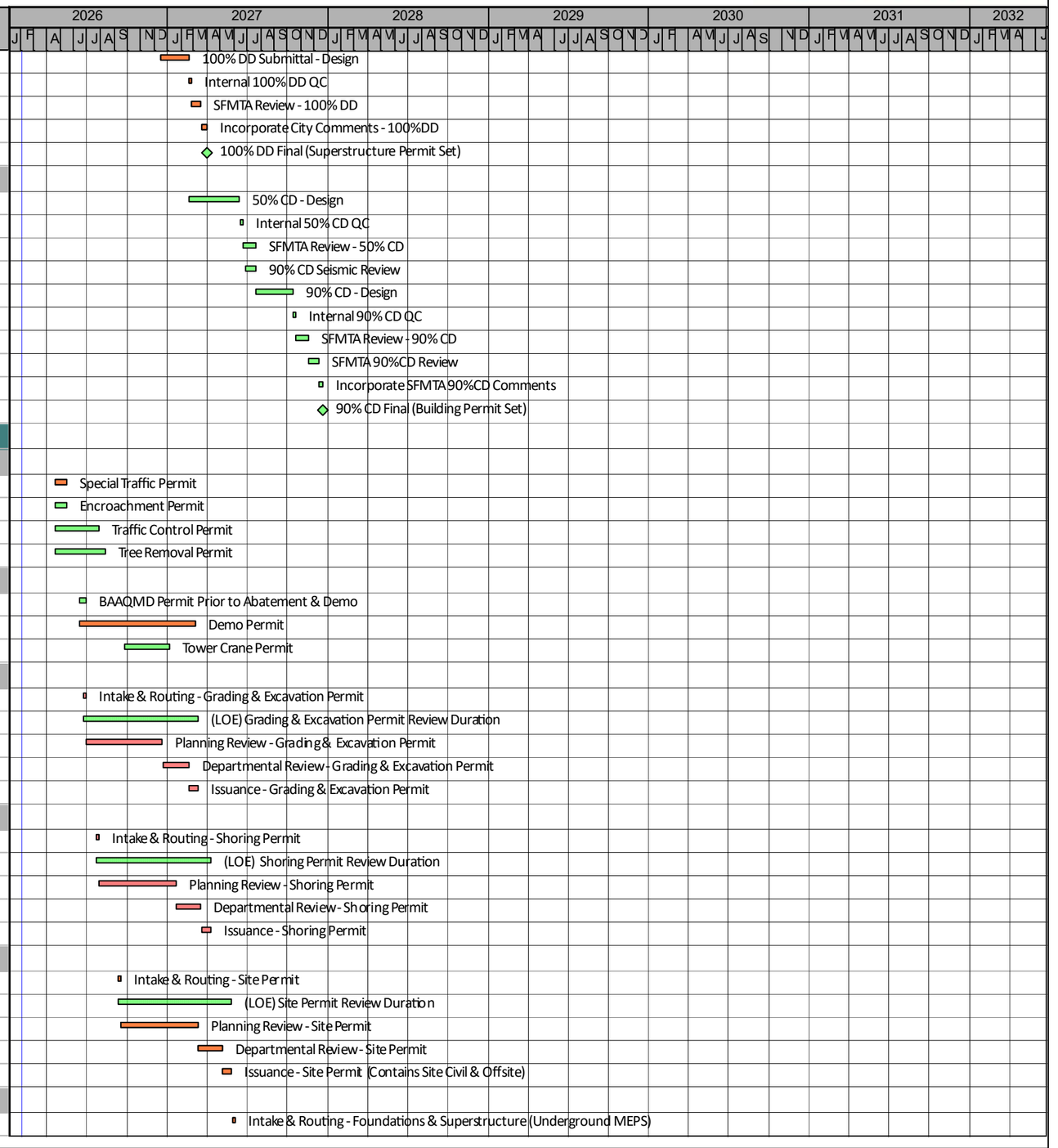
#	Activity Name	OD	Start	Finish
92	Prepare & Submit Construction Management Plan - NTP 2	20	Apr-20-26	May-15-26
93	Construction Management Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
94	**Information Management Plan**	50	Apr-20-26	Jun-29-26
95	Prepare & Submit Information Management Plan - NTP 2	20	Apr-20-26	May-15-26
96	Information Management Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
97	**PPC Design Quality Plan**	50	Apr-20-26	Jun-29-26
98	Prepare & Submit PPC Design Quality Plan - NTP 2	20	Apr-20-26	May-15-26
99	PPC Design Quality Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
100	**Construction Quality Plan**	50	Apr-20-26	Jun-29-26
101	Prepare & Submit Construction Quality Plan -NTP 2	20	Apr-20-26	May-15-26
102	Construction Quality Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
103	**BIM Project Execution Plan**	50	Apr-20-26	Jun-29-26
104	Prepare & Submit BIM Project Execution Plan - NTP 2	20	Apr-20-26	May-15-26
105	BIM Project Execution Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
106	**Site Security Plan**	50	Apr-20-26	Jun-29-26
107	Prepare & Submit Site Security Plan - NTP 2	20	Apr-20-26	May-15-26
108	Site Security Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
109	**Public Outreach and Engagement Plan**	50	Apr-20-26	Jun-29-26
110	Prepare & Submit Public Outreach and Engagement Plan - NTP 2	20	Apr-20-26	May-15-26
111	Public Outreach and Engagement Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
112	**MMRP Plan**	50	Apr-20-26	Jun-29-26
113	Prepare & Submit MMRP Plan - NTP 2	20	Apr-20-26	May-15-26
114	MMRP Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
115	**SFMTA**	112	Feb-06-26	Jul-16-26
116	Labeling & Initial MTA Move-out (2/14/26)	9	Feb-06-26	Feb-14-26
117	Preliminary MTA Relocation / General Service Change - Move-out	10	Mar-25-26	Apr-03-26
118	Onsite Preparation for Items & Equipment - Move-out (Phase 1)	10	Apr-18-26	Apr-27-26
119	(LOE) SFMTA 90d Moveout Period (Calendar Days)	90	Apr-18-26	Jul-16-26
120	Items & Equipment Moved from Offsite - Move-out (Phase 2)	5	Apr-28-26	May-02-26
121	MTA Move-out Window - Move-out (Mid-April Target / Early Site Access)	10	May-04-26	May-15-26
122	Decommissioning Items Remaining for Demolition - Move-out	61	May-16-26	Jul-15-26
123	SFMTA 90d Moveout Period Complete (Calendar Days)	1	Jul-16-26	Jul-16-26
124	**Design**	658	Feb-10-25 A	Dec-20-27
125	**SD+/Program Validation/Value Engineering**	336	Feb-10-25 A	Sep-09-26
126	Value Engineering Program (Ongoing)	44	Feb-10-25 A	Apr-11-25 A
127	100% SD+/Conformed Drawings/Structural Validation & QC	75	Apr-20-26	Aug-04-26
128	Internal 100% SD QC	5	Jul-29-26	Aug-04-26
129	SFMTA Review & Approval End User Endorsement (Incl ARUP Peer Review) - SD+/Conformed Drawings	15	Aug-05-26	Aug-25-26
130	Incorporate City Comments - 100%SD+	10	Aug-26-26	Sep-09-26
131	100% SD+ Final (Site Permit Set)	0		Sep-09-26
132	**Design Development Phase**	165	Aug-05-26	Apr-01-27
133	50% DD - Design	66	Aug-05-26	Nov-05-26
134	Internal 50% DD QC	5	Nov-06-26	Nov-12-26
135	SFMTA Review - 50% DD	20	Nov-13-26	Dec-14-26
136	50% DD Seismic Review	16	Nov-19-26	Dec-14-26



Potrero Yard Modernization
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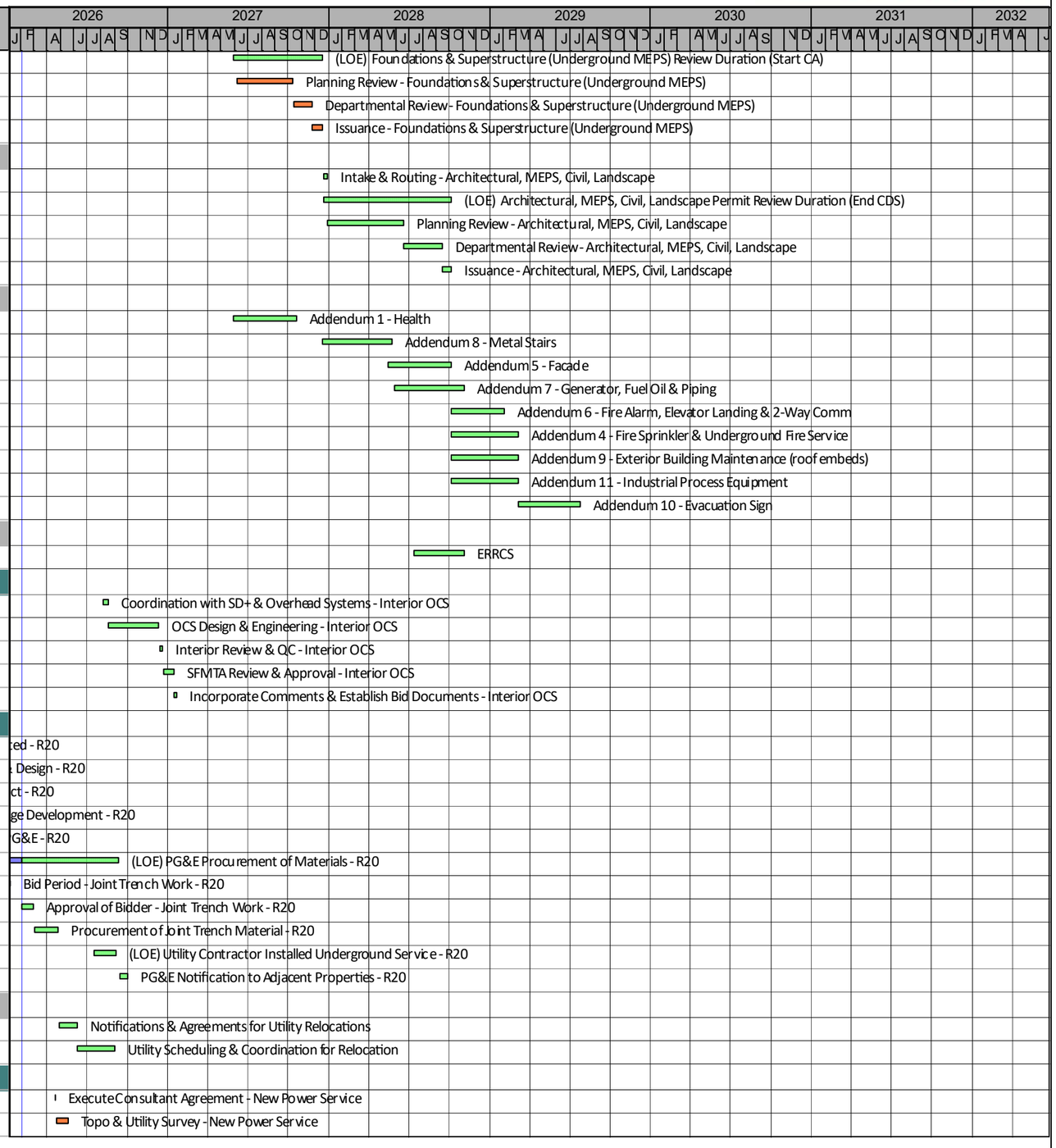
#	Activity Name	OD	Start	Finish
137	100% DD Submittal - Design	44	Dec-15-26	Feb-18-27
138	Internal 100% DD QC	5	Feb-19-27	Feb-25-27
139	SFMTA Review - 100% DD	15	Feb-26-27	Mar-18-27
140	Incorporate City Comments - 100%DD	10	Mar-19-27	Apr-01-27
141	100% DD Final (Superstructure Permit Set)	0		Apr-01-27
142	**Construction Documents Phase**	212	Feb-19-27	Dec-20-27
143	50% CD - Design	81	Feb-19-27	Jun-14-27
144	Internal 50% CD QC	5	Jun-15-27	Jun-21-27
145	SFMTA Review - 50% CD	20	Jun-22-27	Jul-20-27
146	90% CD Seismic Review	16	Jun-28-27	Jul-20-27
147	90% CD - Design	60	Jul-21-27	Oct-13-27
148	Internal 90% CD QC	5	Oct-14-27	Oct-20-27
149	SFMTA Review - 90% CD	20	Oct-21-27	Nov-17-27
150	SFMTA 90%CD Review	15	Nov-18-27	Dec-10-27
151	Incorporate SFMTA 90%CD Comments	6	Dec-13-27	Dec-20-27
152	90% CD Final (Building Permit Set)	0		Dec-20-27
153	**Permitting (Permit Strategy to be Confirmed with Designers & AHJ's)**	822	Apr-20-26	Jul-25-29
154	**SFDPW/BSM Permits**	80	Apr-20-26	Aug-11-26
155	Special Traffic Permit	20	Apr-20-26	May-15-26
156	Encroachment Permit	20	Apr-20-26	May-15-26
157	Traffic Control Permit	70	Apr-20-26	Jul-28-26
158	Tree Removal Permit	80	Apr-20-26	Aug-11-26
159	**Building Permits**	180	Jun-16-26	Mar-04-27
160	BAAQMD Permit Prior to Abatement & Demo	10	Jun-16-26	Jun-29-26
161	Demo Permit	180	Jun-16-26	Mar-04-27
162	Tower Crane Permit	70	Sep-24-26	Jan-06-27
163	**Grading & Excavation Permit**	180	Jun-23-26	Mar-11-27
164	Intake & Routing - Grading & Excavation Permit	5	Jun-23-26	Jun-29-26
165	(LOE) Grading & Excavation Permit Review Duration	180	Jun-23-26	Mar-11-27
166	Planning Review - Grading & Excavation Permit	120	Jun-30-26	Dec-18-26
167	Departmental Review - Grading & Excavation Permit	40	Dec-21-26	Feb-18-27
168	Issuance - Grading & Excavation Permit	15	Feb-19-27	Mar-11-27
169	**Shoring Permit**	180	Jul-22-26	Apr-08-27
170	Intake & Routing - Shoring Permit	5	Jul-22-26	Jul-28-26
171	(LOE) Shoring Permit Review Duration	180	Jul-22-26	Apr-08-27
172	Planning Review - Shoring Permit	120	Jul-29-26	Jan-20-27
173	Departmental Review - Shoring Permit	40	Jan-21-27	Mar-18-27
174	Issuance - Shoring Permit	15	Mar-19-27	Apr-08-27
175	**Site Permit (Permit Addendums Follow)**	180	Sep-10-26	May-27-27
176	Intake & Routing - Site Permit	5	Sep-10-26	Sep-16-26
177	(LOE) Site Permit Review Duration	180	Sep-10-26	May-27-27
178	Planning Review - Site Permit	120	Sep-17-26	Mar-11-27
179	Departmental Review - Site Permit	40	Mar-12-27	May-06-27
180	Issuance - Site Permit (Contains Site Civil & Offsite)	15	May-07-27	May-27-27
181	**Addendum 2 Substructure & Superstructure Permit**	140	May-28-27	Dec-16-27
182	Intake & Routing - Foundations & Superstructure (Underground MEPS)	5	May-28-27	Jun-04-27



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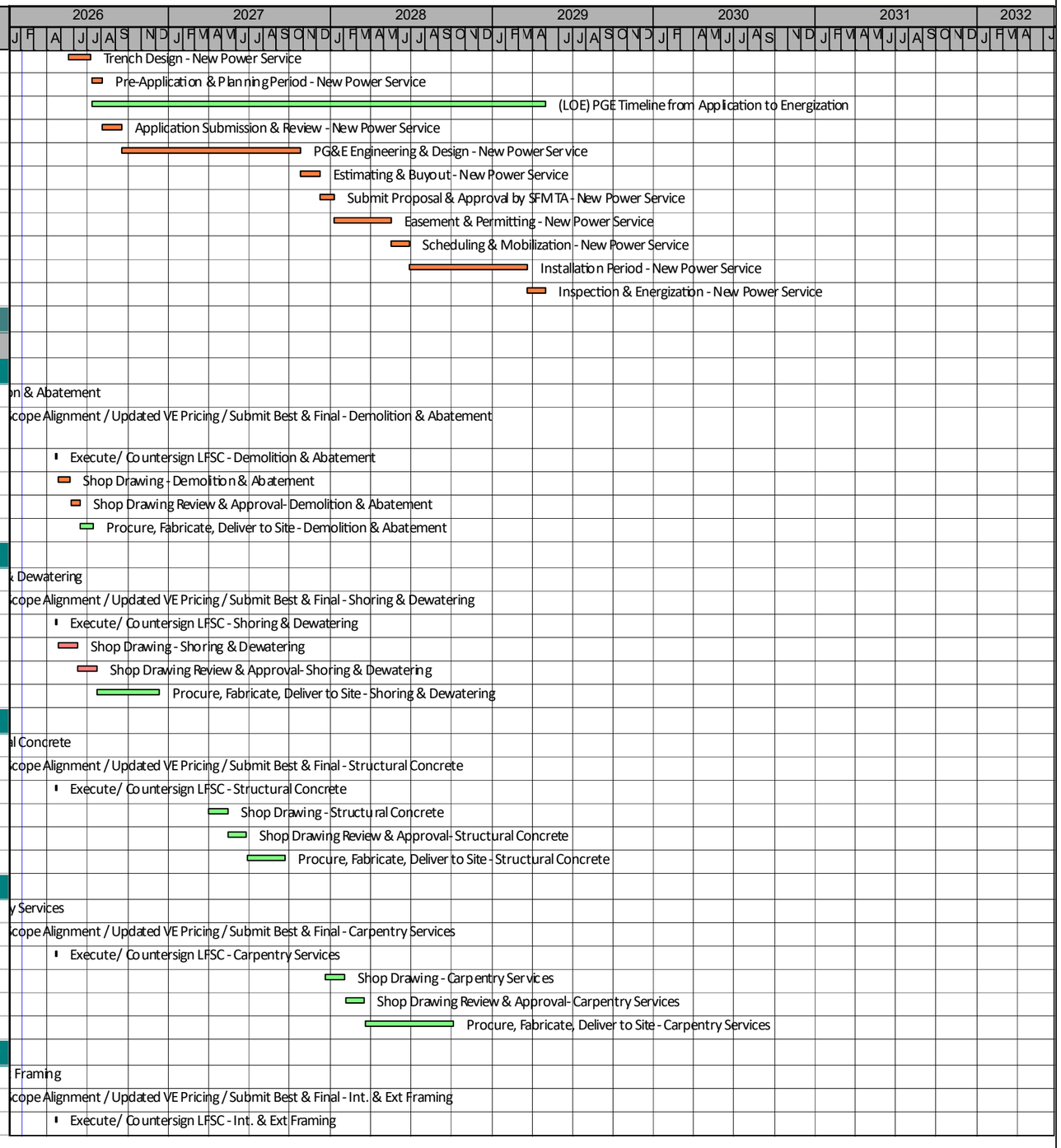
#	Activity Name	OD	Start	Finish
183	(LOE) Foundations & Superstructure (Underground MEPS) Review Duration (Start CA)	140	May-28-27	Dec-16-27
184	Planning Review - Foundations & Superstructure (Underground MEPS)	90	Jun-07-27	Oct-12-27
185	Departmental Review - Foundations & Superstructure (Underground MEPS)	30	Oct-13-27	Nov-23-27
186	Issuance - Foundations & Superstructure (Underground MEPS)	15	Nov-24-27	Dec-16-27
187	**Addendum 3 Architectural Permit (Includes MEPS)**	200	Dec-21-27	Oct-05-28
188	Intake & Routing - Architectural, MEPS, Civil, Landscape	5	Dec-21-27	Dec-29-27
189	(LOE) Architectural, MEPS, Civil, Landscape Permit Review Duration (End CDS)	200	Dec-21-27	Oct-05-28
190	Planning Review - Architectural, MEPS, Civil, Landscape	120	Dec-30-27	Jun-19-28
191	Departmental Review - Architectural, MEPS, Civil, Landscape	60	Jun-20-28	Sep-14-28
192	Issuance - Architectural, MEPS, Civil, Landscape	15	Sep-15-28	Oct-05-28
193	**Addendum**	542	May-28-27	Jul-25-29
194	Addendum 1 - Health	100	May-28-27	Oct-19-27
195	Addendum 8 - Metal Stairs	110	Dec-17-27	May-24-28
196	Addendum 5 - Facade	100	May-15-28	Oct-05-28
197	Addendum 7 - Generator, Fuel Oil & Piping	110	May-30-28	Nov-02-28
198	Addendum 6 - Fire Alarm, Elevator Landing & 2-Way Comm	80	Oct-06-28	Feb-02-29
199	Addendum 4 - Fire Sprinkler & Underground Fire Service	100	Oct-06-28	Mar-05-29
200	Addendum 9 - Exterior Building Maintenance (roof embeds)	100	Oct-06-28	Mar-05-29
201	Addendum 11 - Industrial Process Equipment	100	Oct-06-28	Mar-05-29
202	Addendum 10 - Evacuation Sign	100	Mar-06-29	Jul-25-29
203	**Delegated Design Permits**	80	Jul-13-28	Nov-02-28
204	ERRCS	80	Jul-13-28	Nov-02-28
205	**Interior OCS**	115	Aug-05-26	Jan-20-27
206	Coordination with SD+ & Overhead Systems - Interior OCS	10	Aug-05-26	Aug-18-26
207	OCS Design & Engineering - Interior OCS	80	Aug-19-26	Dec-11-26
208	Interior Review & QC - Interior OCS	5	Dec-14-26	Dec-18-26
209	SFMTA Review & Approval - Interior OCS	15	Dec-21-26	Jan-13-27
210	Incorporate Comments & Establish Bid Documents - Interior OCS	5	Jan-14-27	Jan-20-27
211	**PG&E Rule 20**	353	Jan-13-25 A	Oct-02-26
212	PG&E Application Generated - R20	0	Jan-13-25 A	
213	PG&E Study, Review & Design - R20	34	Jan-13-25 A	Feb-28-25 A
214	Execute PG&E Contract - R20	5	Mar-03-25 A	Mar-07-25 A
215	Giacolone Bid Package Development - R20	20	Mar-03-25 A	Mar-28-25 A
216	Submit Payment to PG&E - R20	5	Mar-10-25 A	Mar-14-25 A
217	(LOE) PG&E Procurement of Materials - R20	159	Mar-14-25 A	Sep-11-26
218	Bid Period - Joint Trench Work - R20	25	Dec-01-25 A	Jan-07-26 A
219	Approval of Bidder - Joint Trench Work - R20	20	Feb-02-26	Mar-02-26
220	Procurement of Joint Trench Material - R20	40	Mar-03-26	Apr-27-26
221	(LOE) Utility Contractor Installed Underground Service - R20	35	Jul-17-26	Sep-03-26
222	PG&E Notification to Adjacent Properties - R20	15	Sep-14-26	Oct-02-26
223	**Pole Mounted Utility Services**	90	Apr-28-26	Sep-02-26
224	Notifications & Agreements for Utility Relocations	30	Apr-28-26	Jun-09-26
225	Utility Scheduling & Coordination for Relocation	60	Jun-10-26	Sep-02-26
226	**PGE Application / New Perm Power Service**	764	Apr-20-26	May-02-29
227	Execute Consultant Agreement - New Power Service	2	Apr-20-26	Apr-21-26
228	Topo & Utility Survey - New Power Service	20	Apr-22-26	May-19-26



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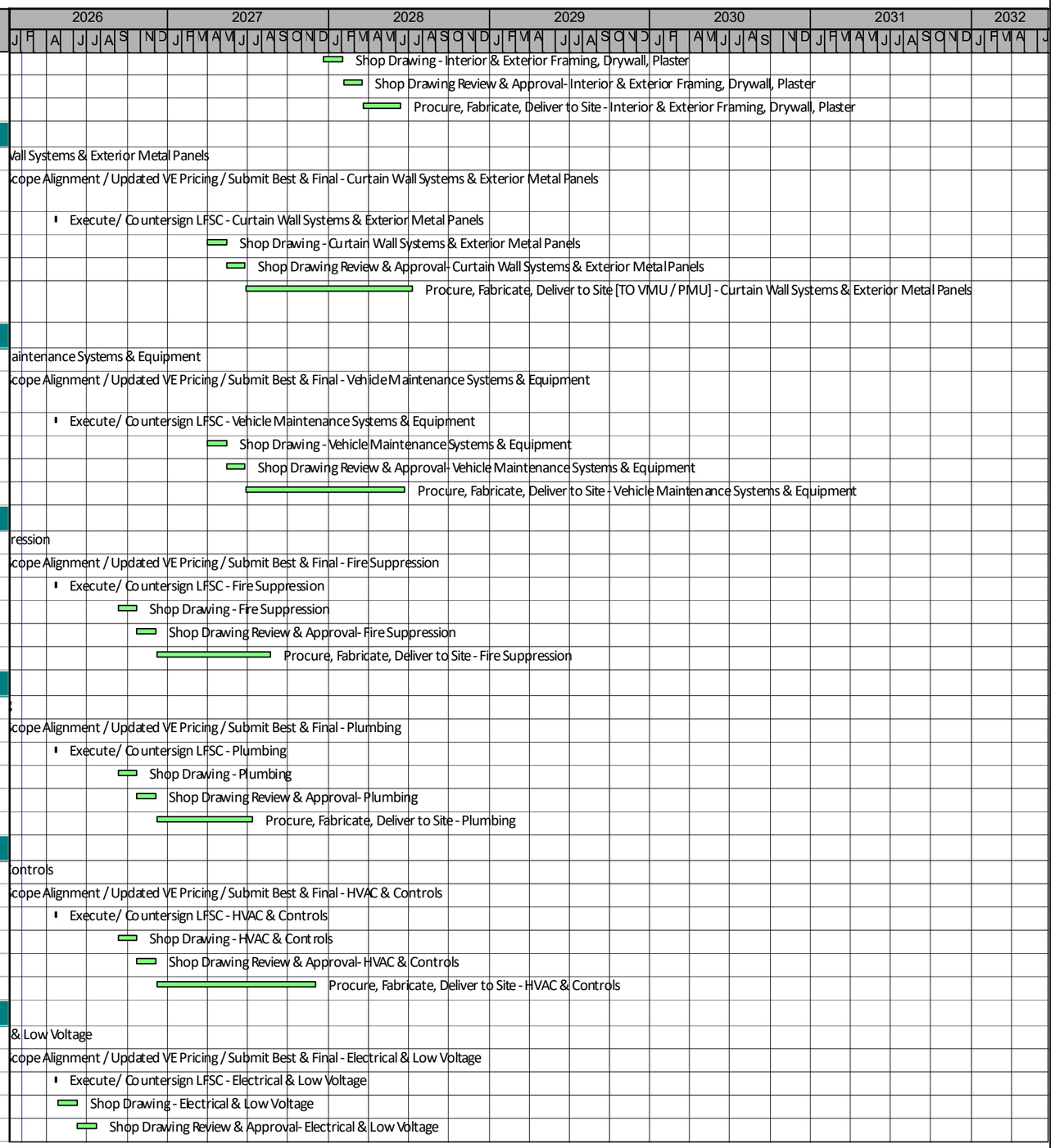
#	Activity Name	OD	Start	Finish
229	Trench Design - New Power Service	35	May-20-26	Jul-09-26
230	Pre-Application & Planning Period - New Power Service	17	Jul-10-26	Aug-03-26
231	(LOE) PGE Timeline from Application to Energization	707	Jul-10-26	May-02-29
232	Application Submission & Review - New Power Service	30	Aug-04-26	Sep-15-26
233	PG&E Engineering & Design - New Power Service	280	Sep-16-26	Oct-25-27
234	Estimating & Buyout - New Power Service	30	Oct-26-27	Dec-08-27
235	Submit Proposal & Approval by SFMTA - New Power Service	20	Dec-09-27	Jan-10-28
236	Easement & Permitting - New Power Service	90	Jan-11-28	May-16-28
237	Scheduling & Mobilization - New Power Service	30	May-17-28	Jun-28-28
238	Installation Period - New Power Service	180	Jun-29-28	Mar-21-29
239	Inspection & Energization - New Power Service	30	Mar-22-29	May-02-29
240	**Buyout & Procurement**	866	Jan-13-25 A	Oct-17-28
241	**Wave 1 Buyout - MEPS Best Value Core Trades (100% SD)**	866	Jan-13-25 A	Oct-17-28
242	**WP-01 Demolition & Abatement**	296	Jan-13-25 A	Jul-14-26
243	Initial Pricing - Demolition & Abatement	20	Jan-13-25 A	Feb-07-25 A
244	Scope Alignment / Updated VE Pricing / Submit Best & Final - Demolition & Abatement	101	Feb-10-25 A	Nov-26-25 A
245	Execute/ Countersign LFSC - Demolition & Abatement	5	Apr-20-26	Apr-24-26
246	Shop Drawing - Demolition & Abatement	20	Apr-27-26	May-22-26
247	Shop Drawing Review & Approval- Demolition & Abatement	15	May-26-26	Jun-15-26
248	Procure, Fabricate, Deliver to Site - Demolition & Abatement	20	Jun-16-26	Jul-14-26
249	**WP-03 Shoring & Dewatering**	401	Jan-13-25 A	Dec-11-26
250	Initial Pricing - Shoring & Dewatering	20	Jan-13-25 A	Feb-07-25 A
251	Scope Alignment / Updated VE Pricing / Submit Best & Final - Shoring & Dewatering	101	Feb-10-25 A	Nov-26-25 A
252	Execute/ Countersign LFSC - Shoring & Dewatering	5	Apr-20-26	Apr-24-26
253	Shop Drawing - Shoring & Dewatering	30	Apr-27-26	Jun-08-26
254	Shop Drawing Review & Approval- Shoring & Dewatering	30	Jun-09-26	Jul-21-26
255	Procure, Fabricate, Deliver to Site - Shoring & Dewatering	100	Jul-22-26	Dec-11-26
256	**WP-04 Structural Concrete**	596	Jan-13-25 A	Sep-21-27
257	Initial Pricing - Structural Concrete	20	Jan-13-25 A	Feb-07-25 A
258	Scope Alignment / Updated VE Pricing / Submit Best & Final - Structural Concrete	101	Feb-10-25 A	Nov-26-25 A
259	Execute/ Countersign LFSC - Structural Concrete	5	Apr-20-26	Apr-24-26
260	Shop Drawing - Structural Concrete	30	Apr-02-27	May-13-27
261	Shop Drawing Review & Approval- Structural Concrete	30	May-14-27	Jun-25-27
262	Procure, Fabricate, Deliver to Site - Structural Concrete	60	Jun-28-27	Sep-21-27
263	**WP-13 Carpentry Services [Millwork, Casework, DFH, Specialties]**	858	Jan-13-25 A	Oct-05-28
264	Initial Pricing - Carpentry Services	20	Jan-13-25 A	Feb-07-25 A
265	Scope Alignment / Updated VE Pricing / Submit Best & Final - Carpentry Services	101	Feb-10-25 A	Nov-26-25 A
266	Execute/ Countersign LFSC - Carpentry Services	5	Apr-20-26	Apr-24-26
267	Shop Drawing - Carpentry Services	30	Dec-21-27	Feb-03-28
268	Shop Drawing Review & Approval- Carpentry Services	30	Feb-04-28	Mar-17-28
269	Procure, Fabricate, Deliver to Site - Carpentry Services	140	Mar-20-28	Oct-05-28
270	**WP-16 Interior & Exterior Framing, Drywall, Plaster**	778	Jan-13-25 A	Jun-12-28
271	Initial Pricing - Int. & Ext Framing	20	Jan-13-25 A	Feb-07-25 A
272	Scope Alignment / Updated VE Pricing / Submit Best & Final - Int. & Ext Framing	101	Feb-10-25 A	Nov-26-25 A
273	Execute/ Countersign LFSC - Int. & Ext Framing	5	Apr-20-26	Apr-24-26



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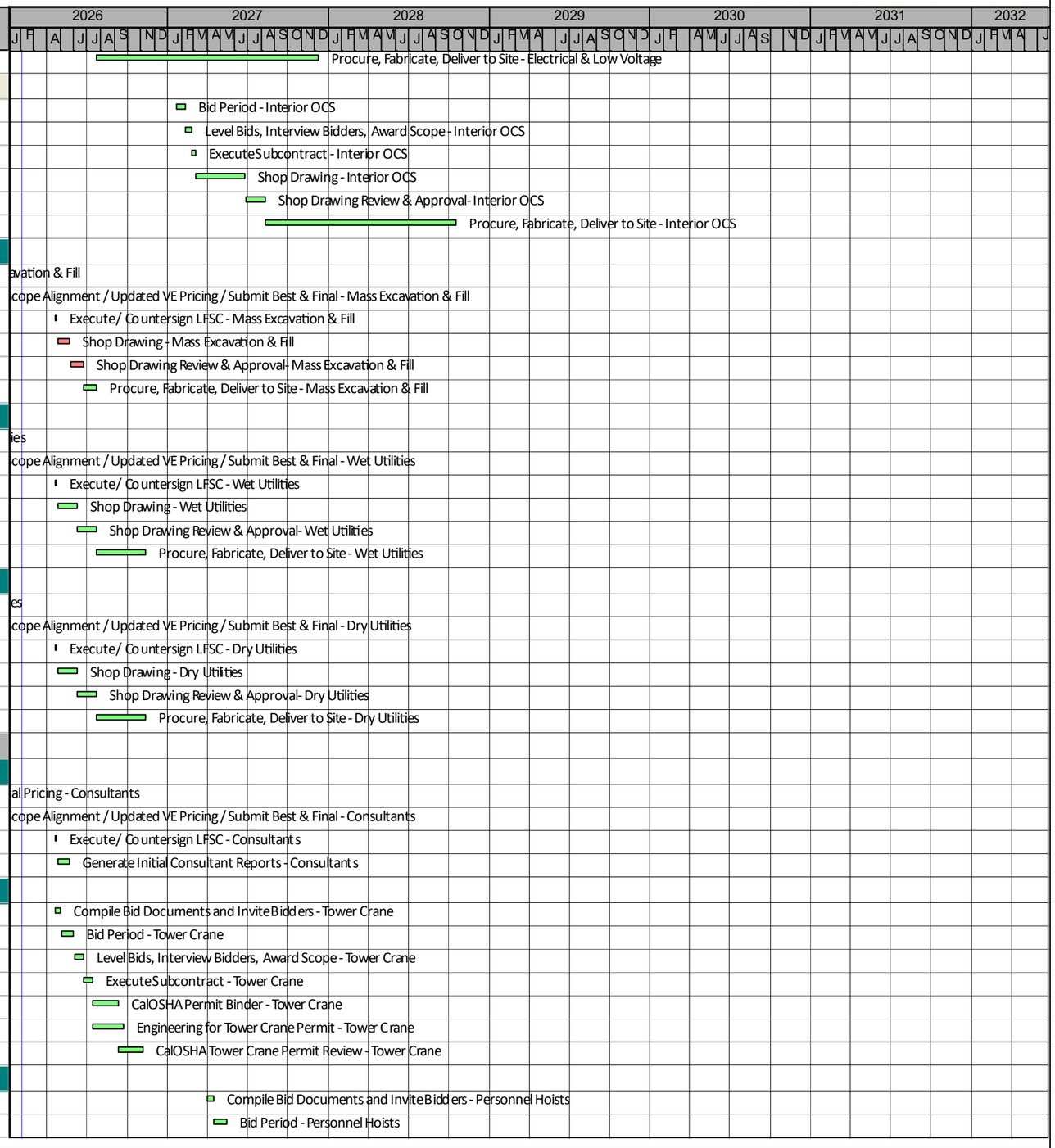
#	Activity Name	OD	Start	Finish
274	Shop Drawing - Interior & Exterior Framing, Drywall, Plaster	30	Dec-21-27	Feb-03-28
275	Shop Drawing Review & Approval- Interior & Exterior Framing, Drywall, Plaster	30	Feb-04-28	Mar-17-28
276	Procure, Fabricate, Deliver to Site - Interior & Exterior Framing, Drywall, Plaster	60	Mar-20-28	Jun-12-28
277	**WP-22 Curtain Wall Systems & Exterior Metal Panels**	796	Jan-13-25 A	Jul-10-28
278	Initial Pricing - Curtain Wall Systems & Exterior Metal Panels	20	Jan-13-25 A	Feb-07-25 A
279	Scope Alignment / Updated VE Pricing / Submit Best & Final - Curtain Wall Systems & Exterior Metal Panels	101	Feb-10-25 A	Nov-26-25 A
280	Execute/ Countersign LFSC - Curtain Wall Systems & Exterior Metal Panels	5	Apr-20-26	Apr-24-26
281	Shop Drawing - Curtain Wall Systems & Exterior Metal Panels	30	Apr-02-27	May-13-27
282	(LOE) Structure	30	May-14-27	Jun-25-27
283	Procure, Fabricate, Deliver to Site [TO VMU / PMU] - Curtain Wall Systems & Exterior Metal Panels	260	Jun-28-27	Jul-10-28
284	**WP-50 Vehicle Maintenance Systems & Equipment**	786	Jan-13-25 A	Jun-22-28
285	Initial Pricing - Vehicle Maintenance Systems & Equipment	20	Jan-13-25 A	Feb-07-25 A
286	Scope Alignment / Updated VE Pricing / Submit Best & Final - Vehicle Maintenance Systems & Equipment	101	Feb-10-25 A	Nov-26-25 A
287	Execute/ Countersign LFSC - Vehicle Maintenance Systems & Equipment	5	Apr-20-26	Apr-24-26
288	Shop Drawing - Vehicle Maintenance Systems & Equipment	30	Apr-02-27	May-13-27
289	Shop Drawing Review & Approval- Vehicle Maintenance Systems & Equipment	30	May-14-27	Jun-25-27
290	Procure, Fabricate, Deliver to Site - Vehicle Maintenance Systems & Equipment	250	Jun-28-27	Jun-22-28
291	**WP-53 Fire Suppression**	576	Jan-13-25 A	Aug-23-27
292	Initial Pricing - Fire Suppression	20	Jan-13-25 A	Feb-07-25 A
293	Scope Alignment / Updated VE Pricing / Submit Best & Final - Fire Suppression	101	Feb-10-25 A	Nov-26-25 A
294	Execute/ Countersign LFSC - Fire Suppression	5	Apr-20-26	Apr-24-26
295	Shop Drawing - Fire Suppression	30	Sep-10-26	Oct-21-26
296	Shop Drawing Review & Approval- Fire Suppression	30	Oct-22-26	Dec-04-26
297	Procure, Fabricate, Deliver to Site - Fire Suppression	180	Dec-07-26	Aug-23-27
298	**WP-54 Plumbing**	546	Jan-13-25 A	Jul-12-27
299	Initial Pricing - Plumbing	20	Jan-13-25 A	Feb-07-25 A
300	Scope Alignment / Updated VE Pricing / Submit Best & Final - Plumbing	101	Feb-10-25 A	Nov-26-25 A
301	Execute/ Countersign LFSC - Plumbing	5	Apr-20-26	Apr-24-26
302	Shop Drawing - Plumbing	30	Sep-10-26	Oct-21-26
303	Shop Drawing Review & Approval- Plumbing	30	Oct-22-26	Dec-04-26
304	Procure, Fabricate, Deliver to Site - Plumbing	150	Dec-07-26	Jul-12-27
305	**WP-56 HVAC & Controls**	646	Jan-13-25 A	Dec-02-27
306	Initial Pricing - HVAC & Controls	20	Jan-13-25 A	Feb-07-25 A
307	Scope Alignment / Updated VE Pricing / Submit Best & Final - HVAC & Controls	101	Feb-10-25 A	Nov-26-25 A
308	Execute/ Countersign LFSC - HVAC & Controls	5	Apr-20-26	Apr-24-26
309	Shop Drawing - HVAC & Controls	30	Sep-10-26	Oct-21-26
310	Shop Drawing Review & Approval- HVAC & Controls	30	Oct-22-26	Dec-04-26
311	Procure, Fabricate, Deliver to Site - HVAC & Controls	250	Dec-07-26	Dec-02-27
312	**WP-57 Electrical & Low Voltage**	866	Jan-13-25 A	Oct-17-28
313	Initial Pricing - Electrical & Low Voltage	20	Jan-13-25 A	Feb-07-25 A
314	Scope Alignment / Updated VE Pricing / Submit Best & Final - Electrical & Low Voltage	101	Feb-10-25 A	Nov-26-25 A
315	Execute/ Countersign LFSC - Electrical & Low Voltage	5	Apr-20-26	Apr-24-26
316	Shop Drawing - Electrical & Low Voltage	30	Apr-27-26	Jun-08-26
317	Shop Drawing Review & Approval- Electrical & Low Voltage	30	Jun-09-26	Jul-21-26



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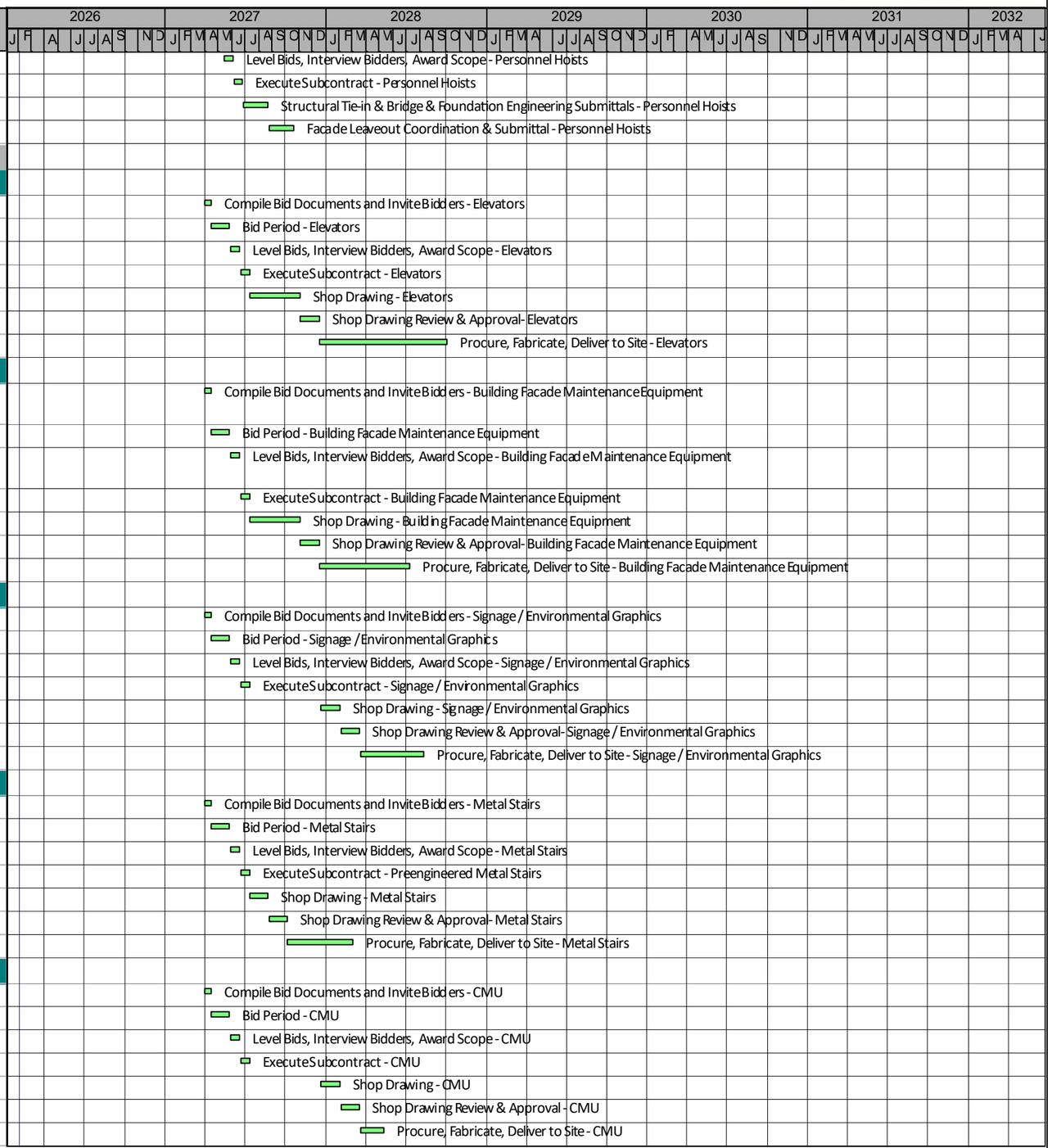
#	Activity Name	OD	Start	Finish
318	Procure, Fabricate, Deliver to Site - Electrical & Low Voltage	350	Jul-22-26	Dec-09-27
319	**Interior OCS**	440	Jan-21-27	Oct-17-28
320	Bid Period - Interior OCS	15	Jan-21-27	Feb-10-27
321	Level Bids, Interview Bidders, Award Scope - Interior OCS	10	Feb-11-27	Feb-25-27
322	ExecuteSubcontract - Interior OCS	5	Feb-26-27	Mar-04-27
323	Shop Drawing - Interior OCS	80	Mar-05-27	Jun-25-27
324	Shop Drawing Review & Approval- Interior OCS	30	Jun-28-27	Aug-09-27
325	Procure, Fabricate, Deliver to Site - Interior OCS	300	Aug-10-27	Oct-17-28
326	**WP-59 Mass Excavation & Fill**	301	Jan-13-25 A	Jul-21-26
327	Initial Pricing - Mass Excavation & Fill	20	Jan-13-25 A	Feb-07-25 A
328	Scope Alignment / Updated VE Pricing / Submit Best & Final - Mass Excavation & Fill	101	Feb-10-25 A	Nov-26-25 A
329	Execute/ Countersign LFSC - Mass Excavation & Fill	5	Apr-20-26	Apr-24-26
330	Shop Drawing - Mass Excavation & Fill	20	Apr-27-26	May-22-26
331	Shop Drawing Review & Approval- Mass Excavation & Fill	20	May-26-26	Jun-22-26
332	Procure, Fabricate, Deliver to Site - Mass Excavation & Fill	20	Jun-23-26	Jul-21-26
333	**WP-71 Wet Utilities**	381	Jan-13-25 A	Nov-11-26
334	Initial Pricing - Wet Utilities	20	Jan-13-25 A	Feb-07-25 A
335	Scope Alignment / Updated VE Pricing / Submit Best & Final - Wet Utilities	101	Feb-10-25 A	Nov-26-25 A
336	Execute/ Countersign LFSC - Wet Utilities	5	Apr-20-26	Apr-24-26
337	Shop Drawing - Wet Utilities	30	Apr-27-26	Jun-08-26
338	Shop Drawing Review & Approval- Wet Utilities	30	Jun-09-26	Jul-21-26
339	Procure, Fabricate, Deliver to Site - Wet Utilities	80	Jul-22-26	Nov-11-26
340	**WP-72 Dry Utilities**	381	Jan-13-25 A	Nov-11-26
341	Initial Pricing - Dry Utilities	20	Jan-13-25 A	Feb-07-25 A
342	Scope Alignment / Updated VE Pricing / Submit Best & Final - Dry Utilities	101	Feb-10-25 A	Nov-26-25 A
343	Execute/ Countersign LFSC - Dry Utilities	5	Apr-20-26	Apr-24-26
344	Shop Drawing - Dry Utilities	30	Apr-27-26	Jun-08-26
345	Shop Drawing Review & Approval- Dry Utilities	30	Jun-09-26	Jul-21-26
346	Procure, Fabricate, Deliver to Site - Dry Utilities	80	Jul-22-26	Nov-11-26
347	**Logistics/General Requirement Buyout**	519	Sep-29-25 A	Oct-19-27
348	**Consultant Buyout & Onboarding**	164	Sep-29-25 A	May-22-26
349	Initial Pricing - Consultants	20	Sep-29-25 A	Oct-24-25 A
350	Scope Alignment / Updated VE Pricing / Submit Best & Final - Consultants	23	Oct-27-25 A	Nov-26-25 A
351	Execute/ Countersign LFSC - Consultants	5	Apr-20-26	Apr-24-26
352	Generate Initial Consultant Reports - Consultants	20	Apr-27-26	May-22-26
353	**Tower Cranes**	140	Apr-20-26	Nov-04-26
354	Compile Bid Documents and InviteBidders - Tower Crane	10	Apr-20-26	May-01-26
355	Bid Period - Tower Crane	20	May-04-26	Jun-01-26
356	Level Bids, Interview Bidders, Award Scope - Tower Crane	15	Jun-02-26	Jun-22-26
357	ExecuteSubcontract - Tower Crane	15	Jun-23-26	Jul-14-26
358	CalOSHA Permit Binder - Tower Crane	40	Jul-15-26	Sep-09-26
359	Engineering for Tower Crane Permit - Tower Crane	50	Jul-15-26	Sep-23-26
360	CalOSHA Tower Crane Permit Review - Tower Crane	40	Sep-10-26	Nov-04-26
361	**Personnel Hoist**	140	Apr-02-27	Oct-19-27
362	Compile Bid Documents and InviteBidders - Personnel Hoists	10	Apr-02-27	Apr-15-27
363	Bid Period - Personnel Hoists	20	Apr-16-27	May-13-27



Potrero Yard Modernization
Final Initial Schedule

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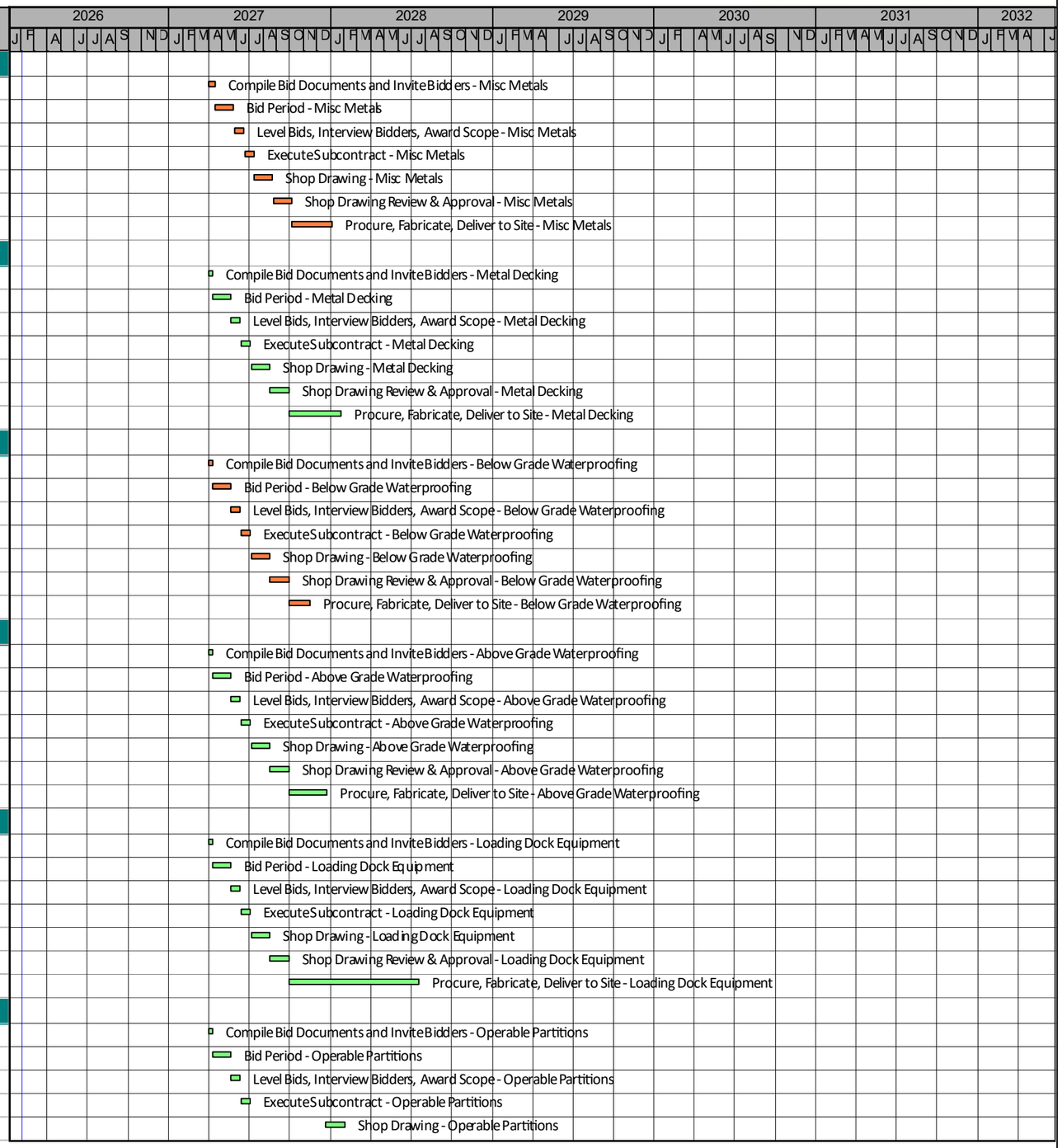
#	Activity Name	OD	Start	Finish
364	Level Bids, Interview Bidders, Award Scope - Personnel Hoists	15	May-14-27	Jun-04-27
365	Execute Subcontract - Personnel Hoists	15	Jun-07-27	Jun-25-27
366	Structural Tie-in & Bridge & Foundation Engineering Submittals - Personnel Hoists	40	Jun-28-27	Aug-23-27
367	Facade Leaveout Coordination & Submittal - Personnel Hoists	40	Aug-24-27	Oct-19-27
368	**Wave 2 Buyout**	380	Apr-02-27	Oct-03-28
369	**WP-52 Elevators**	380	Apr-02-27	Oct-03-28
370	Compile Bid Documents and Invite Bidders - Elevators	10	Apr-02-27	Apr-15-27
371	Bid Period - Elevators	30	Apr-16-27	May-27-27
372	Level Bids, Interview Bidders, Award Scope - Elevators	15	May-28-27	Jun-18-27
373	Execute Subcontract - Elevators	15	Jun-21-27	Jul-12-27
374	Shop Drawing - Elevators	80	Jul-13-27	Nov-02-27
375	Shop Drawing Review & Approval- Elevators	30	Nov-03-27	Dec-16-27
376	Procure, Fabricate, Deliver to Site - Elevators	200	Dec-17-27	Oct-03-28
377	**WP-46 Building Facade Maintenance Equipment**	320	Apr-02-27	Jul-10-28
378	Compile Bid Documents and Invite Bidders - Building Facade Maintenance Equipment	10	Apr-02-27	Apr-15-27
379	Bid Period - Building Facade Maintenance Equipment	30	Apr-16-27	May-27-27
380	Level Bids, Interview Bidders, Award Scope - Building Facade Maintenance Equipment	15	May-28-27	Jun-18-27
381	Execute Subcontract - Building Facade Maintenance Equipment	15	Jun-21-27	Jul-12-27
382	Shop Drawing - Building Facade Maintenance Equipment	80	Jul-13-27	Nov-02-27
383	Shop Drawing Review & Approval- Building Facade Maintenance Equipment	30	Nov-03-27	Dec-16-27
384	Procure, Fabricate, Deliver to Site - Building Facade Maintenance Equipment	140	Dec-17-27	Jul-10-28
385	**WP-39 Signage / Environmental Graphics**	342	Apr-02-27	Aug-09-28
386	Compile Bid Documents and Invite Bidders - Signage / Environmental Graphics	10	Apr-02-27	Apr-15-27
387	Bid Period - Signage / Environmental Graphics	30	Apr-16-27	May-27-27
388	Level Bids, Interview Bidders, Award Scope - Signage / Environmental Graphics	15	May-28-27	Jun-18-27
389	Execute Subcontract - Signage / Environmental Graphics	15	Jun-21-27	Jul-12-27
390	Shop Drawing - Signage / Environmental Graphics	30	Dec-21-27	Feb-03-28
391	Shop Drawing Review & Approval- Signage / Environmental Graphics	30	Feb-04-28	Mar-17-28
392	Procure, Fabricate, Deliver to Site - Signage / Environmental Graphics	100	Mar-20-28	Aug-09-28
393	**WP-10 Preengineered Metal Stairs**	230	Apr-02-27	Mar-01-28
394	Compile Bid Documents and Invite Bidders - Metal Stairs	10	Apr-02-27	Apr-15-27
395	Bid Period - Metal Stairs	30	Apr-16-27	May-27-27
396	Level Bids, Interview Bidders, Award Scope - Metal Stairs	15	May-28-27	Jun-18-27
397	Execute Subcontract - Preengineered Metal Stairs	15	Jun-21-27	Jul-12-27
398	Shop Drawing - Metal Stairs	30	Jul-13-27	Aug-23-27
399	Shop Drawing Review & Approval- Metal Stairs	30	Aug-24-27	Oct-05-27
400	Procure, Fabricate, Deliver to Site - Metal Stairs	100	Oct-06-27	Mar-01-28
401	**WP-07 CMU**	282	Apr-02-27	May-12-28
402	Compile Bid Documents and Invite Bidders - CMU	10	Apr-02-27	Apr-15-27
403	Bid Period - CMU	30	Apr-16-27	May-27-27
404	Level Bids, Interview Bidders, Award Scope - CMU	15	May-28-27	Jun-18-27
405	Execute Subcontract - CMU	15	Jun-21-27	Jul-12-27
406	Shop Drawing - CMU	30	Dec-21-27	Feb-03-28
407	Shop Drawing Review & Approval - CMU	30	Feb-04-28	Mar-17-28
408	Procure, Fabricate, Deliver to Site - CMU	40	Mar-20-28	May-12-28



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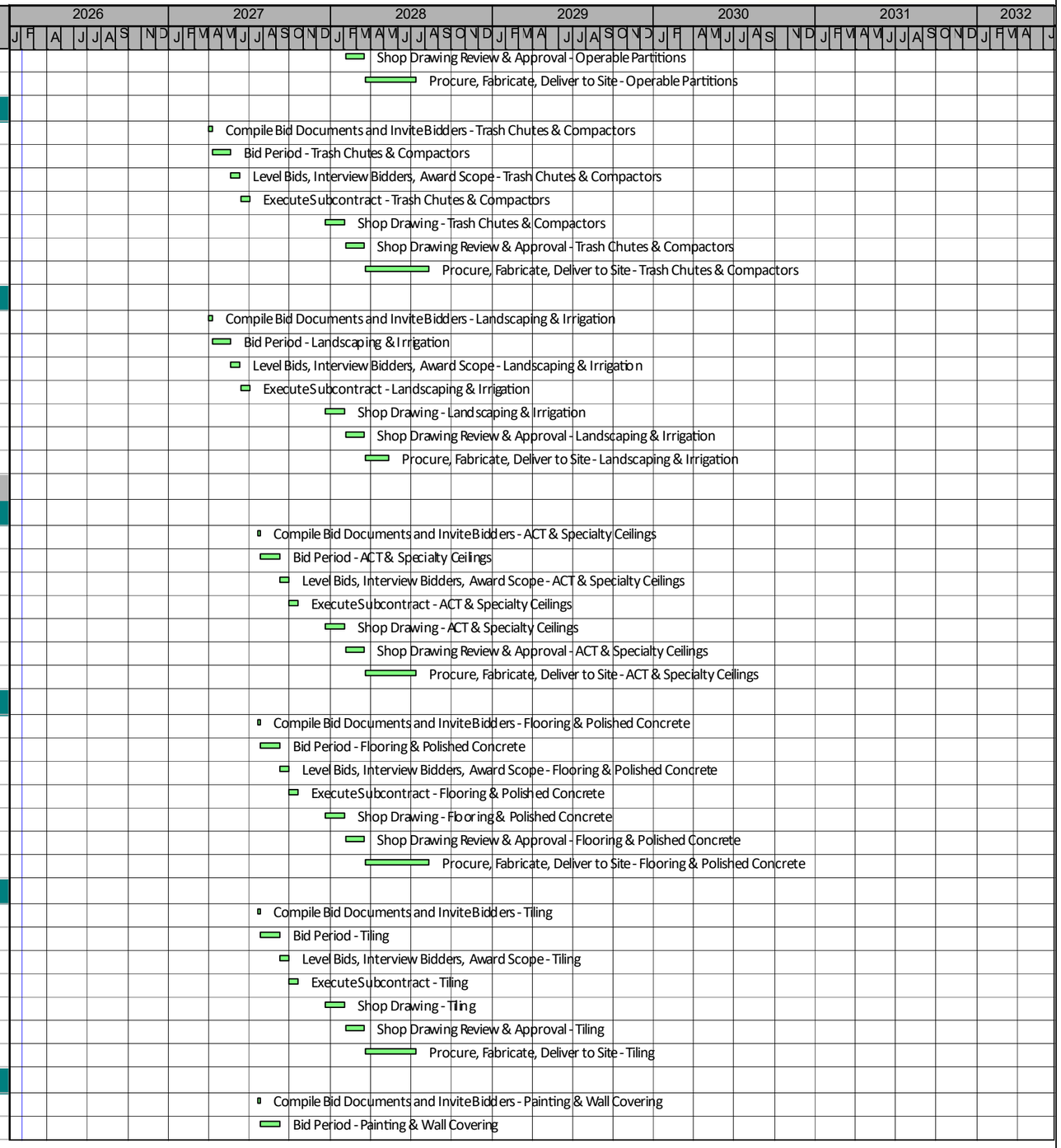
#	Activity Name	OD	Start	Finish
409	**WP-09 Misc. Metals**	190	Apr-02-27	Jan-04-28
410	Compile Bid Documents and Invite Bidders - Misc Metals	10	Apr-02-27	Apr-15-27
411	Bid Period - Misc Metals	30	Apr-16-27	May-27-27
412	Level Bids, Interview Bidders, Award Scope - Misc Metals	15	May-28-27	Jun-18-27
413	Execute Subcontract - Misc Metals	15	Jun-21-27	Jul-12-27
414	Shop Drawing - Misc Metals	30	Jul-13-27	Aug-23-27
415	Shop Drawing Review & Approval - Misc Metals	30	Aug-24-27	Oct-05-27
416	Procure, Fabricate, Deliver to Site - Misc Metals	60	Oct-06-27	Jan-04-28
417	**WP-12 Metal Decking**	205	Apr-02-27	Jan-25-28
418	Compile Bid Documents and Invite Bidders - Metal Decking	5	Apr-02-27	Apr-08-27
419	Bid Period - Metal Decking	30	Apr-09-27	May-20-27
420	Level Bids, Interview Bidders, Award Scope - Metal Decking	15	May-21-27	Jun-11-27
421	Execute Subcontract - Metal Decking	15	Jun-14-27	Jul-02-27
422	Shop Drawing - Metal Decking	30	Jul-06-27	Aug-16-27
423	Shop Drawing Review & Approval - Metal Decking	30	Aug-17-27	Sep-28-27
424	Procure, Fabricate, Deliver to Site - Metal Decking	80	Sep-29-27	Jan-25-28
425	**WP-18 Below Grade Waterproofing**	160	Apr-02-27	Nov-16-27
426	Compile Bid Documents and Invite Bidders - Below Grade Waterproofing	5	Apr-02-27	Apr-08-27
427	Bid Period - Below Grade Waterproofing	30	Apr-09-27	May-20-27
428	Level Bids, Interview Bidders, Award Scope - Below Grade Waterproofing	15	May-21-27	Jun-11-27
429	Execute Subcontract - Below Grade Waterproofing	15	Jun-14-27	Jul-02-27
430	Shop Drawing - Below Grade Waterproofing	30	Jul-06-27	Aug-16-27
431	Shop Drawing Review & Approval - Below Grade Waterproofing	30	Aug-17-27	Sep-28-27
432	Procure, Fabricate, Deliver to Site - Below Grade Waterproofing	35	Sep-29-27	Nov-16-27
433	**WP-19 Above Grade Waterproofing**	185	Apr-02-27	Dec-23-27
434	Compile Bid Documents and Invite Bidders - Above Grade Waterproofing	5	Apr-02-27	Apr-08-27
435	Bid Period - Above Grade Waterproofing	30	Apr-09-27	May-20-27
436	Level Bids, Interview Bidders, Award Scope - Above Grade Waterproofing	15	May-21-27	Jun-11-27
437	Execute Subcontract - Above Grade Waterproofing	15	Jun-14-27	Jul-02-27
438	Shop Drawing - Above Grade Waterproofing	30	Jul-06-27	Aug-16-27
439	Shop Drawing Review & Approval - Above Grade Waterproofing	30	Aug-17-27	Sep-28-27
440	Procure, Fabricate, Deliver to Site - Above Grade Waterproofing	60	Sep-29-27	Dec-23-27
441	**WP-43 Loading Dock Equipment**	325	Apr-02-27	Jul-17-28
442	Compile Bid Documents and Invite Bidders - Loading Dock Equipment	5	Apr-02-27	Apr-08-27
443	Bid Period - Loading Dock Equipment	30	Apr-09-27	May-20-27
444	Level Bids, Interview Bidders, Award Scope - Loading Dock Equipment	15	May-21-27	Jun-11-27
445	Execute Subcontract - Loading Dock Equipment	15	Jun-14-27	Jul-02-27
446	Shop Drawing - Loading Dock Equipment	30	Jul-06-27	Aug-16-27
447	Shop Drawing Review & Approval - Loading Dock Equipment	30	Aug-17-27	Sep-28-27
448	Procure, Fabricate, Deliver to Site - Loading Dock Equipment	200	Sep-29-27	Jul-17-28
449	**WP-45 Operable Partitions * move to wave 3**	322	Apr-02-27	Jul-12-28
450	Compile Bid Documents and Invite Bidders - Operable Partitions	5	Apr-02-27	Apr-08-27
451	Bid Period - Operable Partitions	30	Apr-09-27	May-20-27
452	Level Bids, Interview Bidders, Award Scope - Operable Partitions	15	May-21-27	Jun-11-27
453	Execute Subcontract - Operable Partitions	15	Jun-14-27	Jul-02-27
454	Shop Drawing - Operable Partitions	30	Dec-21-27	Feb-03-28



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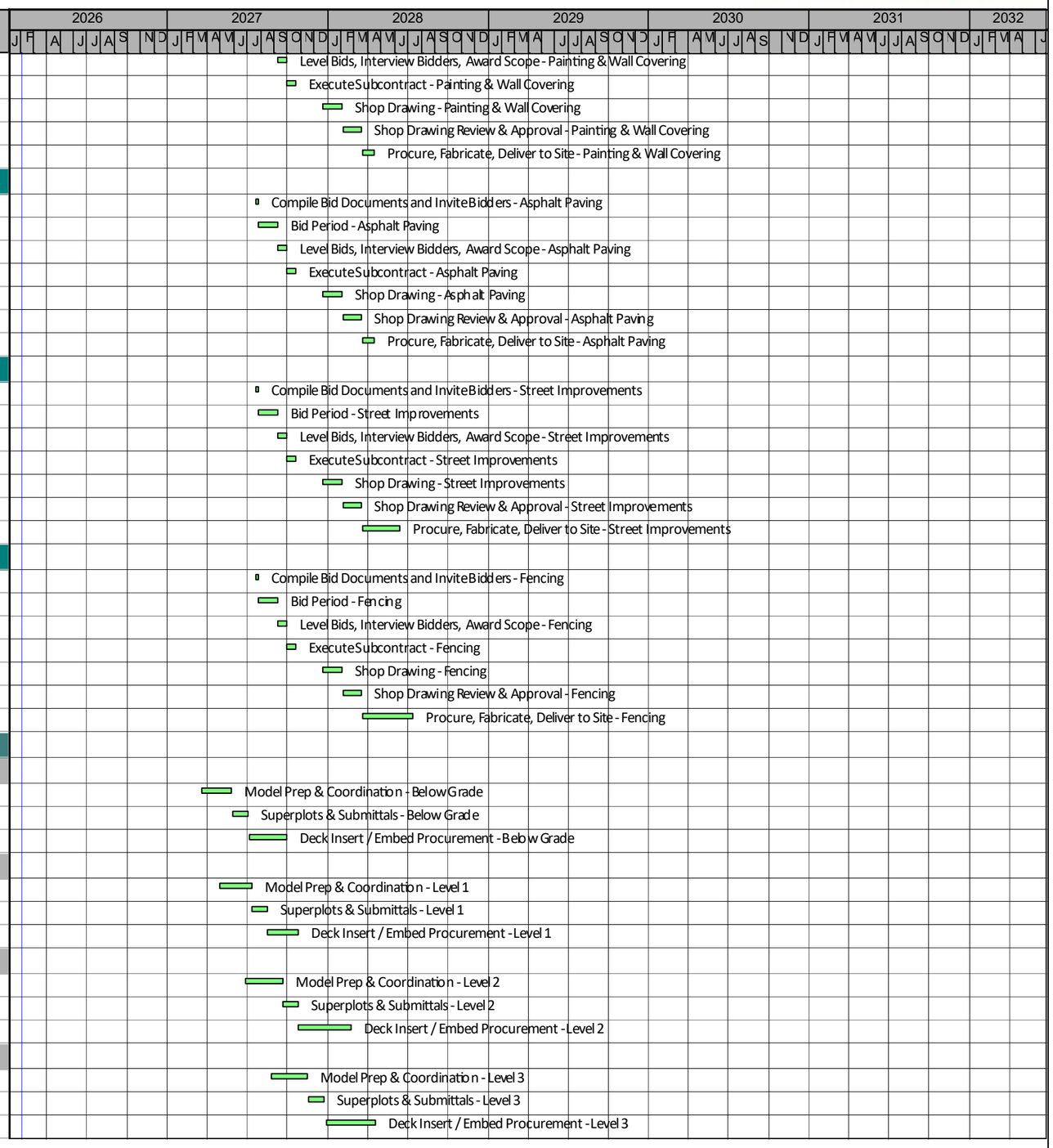
#	Activity Name	OD	Start	Finish
455	Shop Drawing Review & Approval - Operable Partitions	30	Feb-04-28	Mar-17-28
456	Procure, Fabricate, Deliver to Site - Operable Partitions	80	Mar-20-28	Jul-12-28
457	**WP-58 Trash Chutes & Compactors**	342	Apr-02-27	Aug-09-28
458	Compile Bid Documents and Invite Bidders - Trash Chutes & Compactors	5	Apr-02-27	Apr-08-27
459	Bid Period - Trash Chutes & Compactors	30	Apr-09-27	May-20-27
460	Level Bids, Interview Bidders, Award Scope - Trash Chutes & Compactors	15	May-21-27	Jun-11-27
461	Execute Subcontract - Trash Chutes & Compactors	15	Jun-14-27	Jul-02-27
462	Shop Drawing - Trash Chutes & Compactors	30	Dec-21-27	Feb-03-28
463	Shop Drawing Review & Approval - Trash Chutes & Compactors	30	Feb-04-28	Mar-17-28
464	Procure, Fabricate, Deliver to Site - Trash Chutes & Compactors	100	Mar-20-28	Aug-09-28
465	**WP-66 Landscaping & Irrigation * move to wave 3**	282	Apr-02-27	May-12-28
466	Compile Bid Documents and Invite Bidders - Landscaping & Irrigation	5	Apr-02-27	Apr-08-27
467	Bid Period - Landscaping & Irrigation	30	Apr-09-27	May-20-27
468	Level Bids, Interview Bidders, Award Scope - Landscaping & Irrigation	15	May-21-27	Jun-11-27
469	Execute Subcontract - Landscaping & Irrigation	15	Jun-14-27	Jul-02-27
470	Shop Drawing - Landscaping & Irrigation	30	Dec-21-27	Feb-03-28
471	Shop Drawing Review & Approval - Landscaping & Irrigation	30	Feb-04-28	Mar-17-28
472	Procure, Fabricate, Deliver to Site - Landscaping & Irrigation	40	Mar-20-28	May-12-28
473	**Wave 3 Buyout**	266	Jul-21-27	Aug-09-28
474	**WP-32 ACT & Specialty Ceilings**	246	Jul-21-27	Jul-12-28
475	Compile Bid Documents and Invite Bidders - ACT & Specialty Ceilings	5	Jul-21-27	Jul-27-27
476	Bid Period - ACT & Specialty Ceilings	30	Jul-28-27	Sep-08-27
477	Level Bids, Interview Bidders, Award Scope - ACT & Specialty Ceilings	15	Sep-09-27	Sep-29-27
478	Execute Subcontract - ACT & Specialty Ceilings	15	Sep-30-27	Oct-20-27
479	Shop Drawing - ACT & Specialty Ceilings	30	Dec-21-27	Feb-03-28
480	Shop Drawing Review & Approval - ACT & Specialty Ceilings	30	Feb-04-28	Mar-17-28
481	Procure, Fabricate, Deliver to Site - ACT & Specialty Ceilings	80	Mar-20-28	Jul-12-28
482	**WP-33 Flooring & Polished Concrete**	266	Jul-21-27	Aug-09-28
483	Compile Bid Documents and Invite Bidders - Flooring & Polished Concrete	5	Jul-21-27	Jul-27-27
484	Bid Period - Flooring & Polished Concrete	30	Jul-28-27	Sep-08-27
485	Level Bids, Interview Bidders, Award Scope - Flooring & Polished Concrete	15	Sep-09-27	Sep-29-27
486	Execute Subcontract - Flooring & Polished Concrete	15	Sep-30-27	Oct-20-27
487	Shop Drawing - Flooring & Polished Concrete	30	Dec-21-27	Feb-03-28
488	Shop Drawing Review & Approval - Flooring & Polished Concrete	30	Feb-04-28	Mar-17-28
489	Procure, Fabricate, Deliver to Site - Flooring & Polished Concrete	100	Mar-20-28	Aug-09-28
490	**WP-35 Tiling**	246	Jul-21-27	Jul-12-28
491	Compile Bid Documents and Invite Bidders - Tiling	5	Jul-21-27	Jul-27-27
492	Bid Period - Tiling	30	Jul-28-27	Sep-08-27
493	Level Bids, Interview Bidders, Award Scope - Tiling	15	Sep-09-27	Sep-29-27
494	Execute Subcontract - Tiling	15	Sep-30-27	Oct-20-27
495	Shop Drawing - Tiling	30	Dec-21-27	Feb-03-28
496	Shop Drawing Review & Approval - Tiling	30	Feb-04-28	Mar-17-28
497	Procure, Fabricate, Deliver to Site - Tiling	80	Mar-20-28	Jul-12-28
498	**WP-37 Painting & Wall Covering**	186	Jul-21-27	Apr-14-28
499	Compile Bid Documents and Invite Bidders - Painting & Wall Covering	5	Jul-21-27	Jul-27-27
500	Bid Period - Painting & Wall Covering	30	Jul-28-27	Sep-08-27



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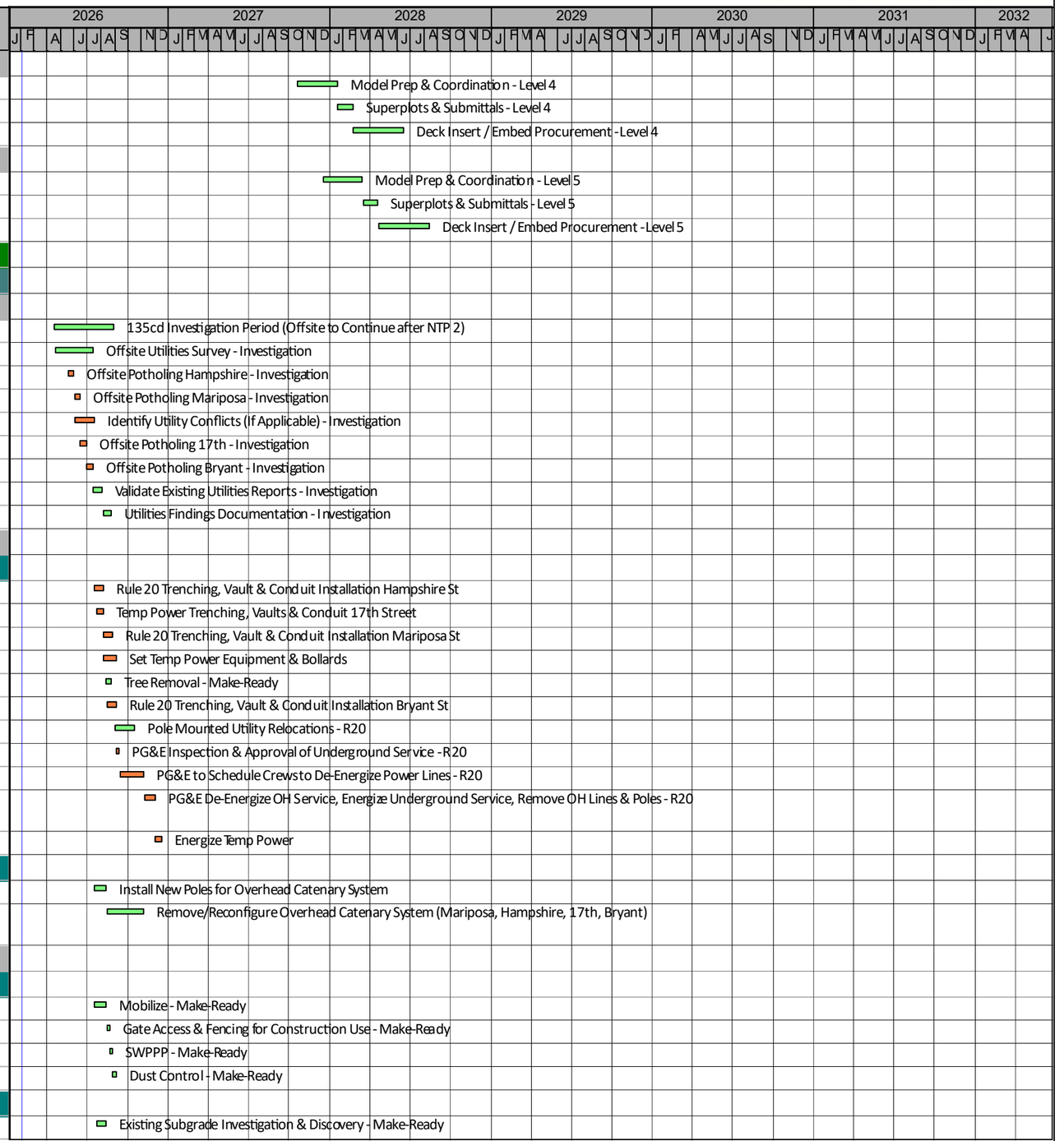
#	Activity Name	OD	Start	Finish
501	Level Bids, Interview Bidders, Award Scope - Painting & Wall Covering	15	Sep-09-27	Sep-29-27
502	ExecuteSubcontract - Painting & Wall Covering	15	Sep-30-27	Oct-20-27
503	Shop Drawing - Painting & Wall Covering	30	Dec-21-27	Feb-03-28
504	Shop Drawing Review & Approval - Painting & Wall Covering	30	Feb-04-28	Mar-17-28
505	Procure, Fabricate, Deliver to Site - Painting & Wall Covering	20	Mar-20-28	Apr-14-28
506	**WP-60 Asphalt Paving**	186	Jul-21-27	Apr-14-28
507	Compile Bid Documents and InviteBidders - Asphalt Paving	5	Jul-21-27	Jul-27-27
508	Bid Period - Asphalt Paving	30	Jul-28-27	Sep-08-27
509	Level Bids, Interview Bidders, Award Scope - Asphalt Paving	15	Sep-09-27	Sep-29-27
510	ExecuteSubcontract - Asphalt Paving	15	Sep-30-27	Oct-20-27
511	Shop Drawing - Asphalt Paving	30	Dec-21-27	Feb-03-28
512	Shop Drawing Review & Approval - Asphalt Paving	30	Feb-04-28	Mar-17-28
513	Procure, Fabricate, Deliver to Site - Asphalt Paving	20	Mar-20-28	Apr-14-28
514	**WP-62 Street Improvements**	226	Jul-21-27	Jun-12-28
515	Compile Bid Documents and InviteBidders - Street Improvements	5	Jul-21-27	Jul-27-27
516	Bid Period - Street Improvements	30	Jul-28-27	Sep-08-27
517	Level Bids, Interview Bidders, Award Scope - Street Improvements	15	Sep-09-27	Sep-29-27
518	ExecuteSubcontract - Street Improvements	15	Sep-30-27	Oct-20-27
519	Shop Drawing - Street Improvements	30	Dec-21-27	Feb-03-28
520	Shop Drawing Review & Approval - Street Improvements	30	Feb-04-28	Mar-17-28
521	Procure, Fabricate, Deliver to Site - Street Improvements	60	Mar-20-28	Jun-12-28
522	**WP-67 Fencing**	246	Jul-21-27	Jul-12-28
523	Compile Bid Documents and InviteBidders - Fencing	5	Jul-21-27	Jul-27-27
524	Bid Period - Fencing	30	Jul-28-27	Sep-08-27
525	Level Bids, Interview Bidders, Award Scope - Fencing	15	Sep-09-27	Sep-29-27
526	ExecuteSubcontract - Fencing	15	Sep-30-27	Oct-20-27
527	Shop Drawing - Fencing	30	Dec-21-27	Feb-03-28
528	Shop Drawing Review & Approval - Fencing	30	Feb-04-28	Mar-17-28
529	Procure, Fabricate, Deliver to Site - Fencing	80	Mar-20-28	Jul-12-28
530	**Trade Coordination**	355	Mar-19-27	Aug-14-28
531	**Below Grade - Trade Coordination**	135	Mar-19-27	Sep-28-27
532	Model Prep & Coordination - Below Grade	50	Mar-19-27	May-27-27
533	Superplots & Submittals - Below Grade	25	May-28-27	Jul-02-27
534	Deck Insert / Embed Procurement - Below Grade	60	Jul-06-27	Sep-28-27
535	**Level 1 - Trade Coordination**	125	Apr-30-27	Oct-26-27
536	Model Prep & Coordination - Level 1	50	Apr-30-27	Jul-12-27
537	Superplots & Submittals - Level 1	25	Jul-13-27	Aug-16-27
538	Deck Insert / Embed Procurement - Level 1	50	Aug-17-27	Oct-26-27
539	**Level 2 - Trade Coordination**	165	Jun-28-27	Feb-23-28
540	Model Prep & Coordination - Level 2	60	Jun-28-27	Sep-21-27
541	Superplots & Submittals - Level 2	25	Sep-22-27	Oct-26-27
542	Deck Insert / Embed Procurement - Level 2	80	Oct-27-27	Feb-23-28
543	**Level 3 - Trade Coordination**	165	Aug-24-27	Apr-19-28
544	Model Prep & Coordination - Level 3	60	Aug-24-27	Nov-16-27
545	Superplots & Submittals - Level 3	25	Nov-17-27	Dec-23-27
546	Deck Insert / Embed Procurement - Level 3	80	Dec-28-27	Apr-19-28



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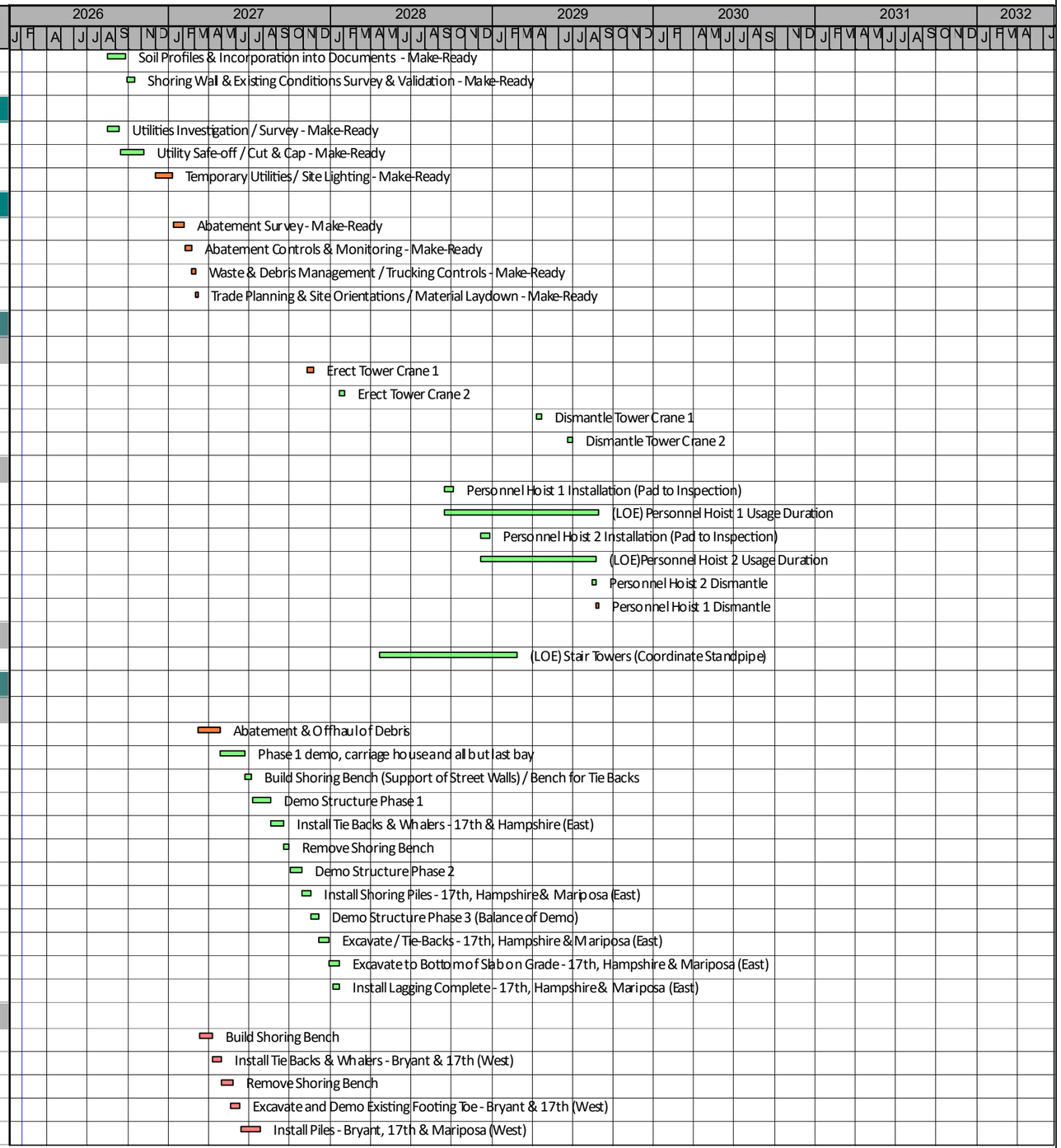
#	Activity Name	OD	Start	Finish
547	**Level 4 - Trade Coordination**	165	Oct-20-27	Jun-15-28
548	Model Prep & Coordination - Level 4	60	Oct-20-27	Jan-18-28
549	Superplots & Submittals - Level 4	25	Jan-19-28	Feb-23-28
550	Deck Insert / Embed Procurement - Level 4	80	Feb-24-28	Jun-15-28
551	**Roof Mechanical - Trade Coordination**	165	Dec-17-27	Aug-14-28
552	Model Prep & Coordination - Level 5	60	Dec-17-27	Mar-15-28
553	Superplots & Submittals - Level 5	25	Mar-16-28	Apr-19-28
554	Deck Insert / Embed Procurement - Level 5	80	Apr-20-28	Aug-14-28
555	**Construction**	1177	Apr-18-26	Dec-23-30
556	**Initial Mobilization**	222	Apr-18-26	Mar-08-27
557	**Investigation**	93	Apr-18-26	Aug-30-26
558	135cd Investigation Period (Offsite to Continue after NTP 2)	135	Apr-18-26	Aug-30-26
559	Offsite Utilities Survey - Investigation	60	Apr-20-26	Jul-14-26
560	Offsite Potholing Hampshire - Investigation	10	May-18-26	Jun-01-26
561	Offsite Potholing Mariposa - Investigation	10	Jun-02-26	Jun-15-26
562	Identify Utility Conflicts (If Applicable) - Investigation	30	Jun-04-26	Jul-16-26
563	Offsite Potholing 17th - Investigation	10	Jun-16-26	Jun-29-26
564	Offsite Potholing Bryant - Investigation	10	Jun-30-26	Jul-14-26
565	Validate Existing Utilities Reports - Investigation	15	Jul-15-26	Aug-04-26
566	Utilities Findings Documentation - Investigation	15	Aug-05-26	Aug-25-26
567	**Offsite**	105	Jul-17-26	Dec-15-26
568	**PG&E Rule 20 & Temp Power Work**	105	Jul-17-26	Dec-15-26
569	Rule 20 Trenching, Vault & Conduit Installation Hampshire St	15	Jul-17-26	Aug-06-26
570	Temp Power Trenching, Vaults & Conduit 17th Street	10	Jul-24-26	Aug-06-26
571	Rule 20 Trenching, Vault & Conduit Installation Mariposa St	15	Aug-07-26	Aug-27-26
572	Set Temp Power Equipment & Bollards	20	Aug-07-26	Sep-03-26
573	Tree Removal - Make-Ready	10	Aug-12-26	Aug-25-26
574	Rule 20 Trenching, Vault & Conduit Installation Bryant St	15	Aug-14-26	Sep-03-26
575	Pole Mounted Utility Relocations - R20	30	Sep-03-26	Oct-15-26
576	PG&E Inspection & Approval of Underground Service - R20	5	Sep-04-26	Sep-11-26
577	PG&E to Schedule Crews to De-Energize Power Lines - R20	40	Sep-14-26	Nov-06-26
578	PG&E De-Energize OH Service, Energize Underground Service, Remove OH Lines & Poles - R20	15	Nov-09-26	Dec-01-26
579	Energize Temp Power	10	Dec-02-26	Dec-15-26
580	**Overhead Catenary System Removal**	80	Jul-17-26	Nov-06-26
581	Install New Poles for Overhead Catenary System	20	Jul-17-26	Aug-13-26
582	Remove/Reconfigure Overhead Catenary System (Mariposa, Hampshire, 17th, Bryant)	60	Aug-14-26	Nov-06-26
583	**Onsite**	160	Jul-17-26	Mar-08-27
584	**Requirements & Mitigation**	35	Jul-17-26	Sep-03-26
585	Mobilize - Make-Ready	20	Jul-17-26	Aug-13-26
586	Gate Access & Fencing for Construction Use - Make-Ready	5	Aug-14-26	Aug-20-26
587	SWPPP - Make-Ready	5	Aug-21-26	Aug-27-26
588	Dust Control - Make-Ready	5	Aug-28-26	Sep-03-26
589	**Geotech**	60	Jul-24-26	Oct-16-26
590	Existing Subgrade Investigation & Discovery - Make-Ready	15	Jul-24-26	Aug-13-26



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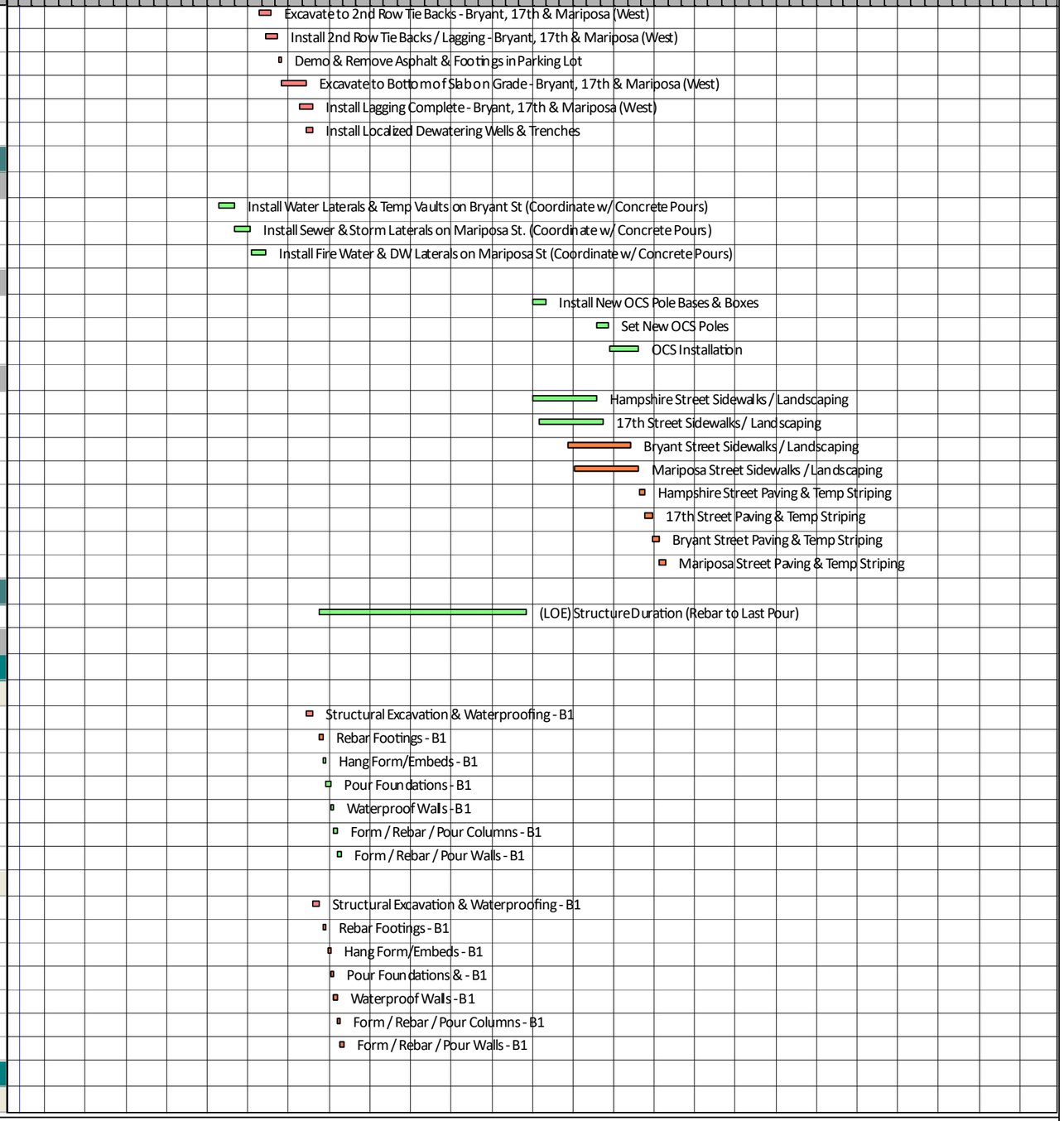
#	Activity Name	OD	Start	Finish
591	Soil Profiles & Incorporation into Documents - Make-Ready	30	Aug-14-26	Sep-25-26
592	Shoring Wall & Existing Conditions Survey & Validation - Make-Ready	15	Sep-28-26	Oct-16-26
593	**Utilities**	100	Aug-14-26	Jan-08-27
594	Utilities Investigation / Survey - Make-Ready	20	Aug-14-26	Sep-11-26
595	Utility Safe-off / Cut & Cap - Make-Ready	40	Sep-14-26	Nov-06-26
596	Temporary Utilities/ Site Lighting - Make-Ready	25	Dec-02-26	Jan-08-27
597	**Hazmat**	40	Jan-11-27	Mar-08-27
598	Abatement Survey - Make-Ready	20	Jan-11-27	Feb-05-27
599	Abatement Controls & Monitoring - Make-Ready	10	Feb-08-27	Feb-22-27
600	Waste & Debris Management / Trucking Controls - Make-Ready	5	Feb-23-27	Mar-01-27
601	Trade Planning & Site Orientations / Material Laydown - Make-Ready	5	Mar-02-27	Mar-08-27
602	**Equipment & Logistics**	452	Nov-10-27	Aug-29-29
603	**Tower Cranes**	412	Nov-10-27	Jul-03-29
604	Erect Tower Crane 1	10	Nov-10-27	Nov-23-27
605	Erect Tower Crane 2	10	Jan-21-28	Feb-03-28
606	Dismantle Tower Crane 1	10	Apr-10-29	Apr-23-29
607	Dismantle Tower Crane 2	10	Jun-20-29	Jul-03-29
608	**Personnel Hoists**	240	Sep-15-28	Aug-29-29
609	Personnel Hoist 1 Installation (Pad to Inspection)	15	Sep-15-28	Oct-05-28
610	(LOE) Personnel Hoist 1 Usage Duration	240	Sep-15-28	Aug-29-29
611	Personnel Hoist 2 Installation (Pad to Inspection)	15	Dec-05-28	Dec-27-28
612	(LOE)Personnel Hoist 2 Usage Duration	180	Dec-05-28	Aug-22-29
613	Personnel Hoist 2 Dismantle	5	Aug-16-29	Aug-22-29
614	Personnel Hoist 1 Dismantle	5	Aug-23-29	Aug-29-29
615	**Stair Towers**	212	Apr-20-28	Feb-26-29
616	(LOE) Stair Towers (Coordinate Standpipe)	212	Apr-20-28	Feb-26-29
617	**Demo, Shoring & Excavation**	220	Mar-09-27	Jan-20-28
618	**East Half of Site (Existing Structure)**	220	Mar-09-27	Jan-20-28
619	Abatement & Offhaul of Debris	35	Mar-09-27	Apr-26-27
620	Phase 1 demo, carriage house and all but last bay	40	Apr-27-27	Jun-22-27
621	Build Shoring Bench (Support of Street Walls) / Bench for Tie Backs	10	Jun-23-27	Jul-07-27
622	Demo Structure Phase 1	30	Jul-08-27	Aug-18-27
623	Install Tie Backs & Whalers - 17th & Hampshire (East)	20	Aug-19-27	Sep-16-27
624	Remove Shoring Bench	10	Sep-17-27	Sep-30-27
625	Demo Structure Phase 2	20	Oct-01-27	Oct-28-27
626	Install Shoring Piles - 17th, Hampshire& Mariposa (East)	15	Oct-29-27	Nov-18-27
627	Demo Structure Phase 3 (Balance of Demo)	10	Nov-19-27	Dec-06-27
628	Excavate / Tie-Backs - 17th, Hampshire & Mariposa (East)	15	Dec-07-27	Dec-29-27
629	Excavate to Bottom of Slab on Grade - 17th, Hampshire & Mariposa (East)	15	Dec-30-27	Jan-20-28
630	Install Lagging Complete - 17th, Hampshire& Mariposa (East)	10	Jan-07-28	Jan-20-28
631	**West Half of Site (Parking lot)**	180	Mar-12-27	Nov-23-27
632	Build Shoring Bench	20	Mar-12-27	Apr-08-27
633	Install Tie Backs & Whalers - Bryant & 17th (West)	15	Apr-09-27	Apr-29-27
634	Remove Shoring Bench	20	Apr-30-27	May-27-27
635	Excavate and Demo Existing Footing Toe - Bryant & 17th (West)	15	May-21-27	Jun-11-27
636	Install Piles - Bryant, 17th & Mariposa (West)	30	Jun-14-27	Jul-26-27



Potrero Yard Modernization
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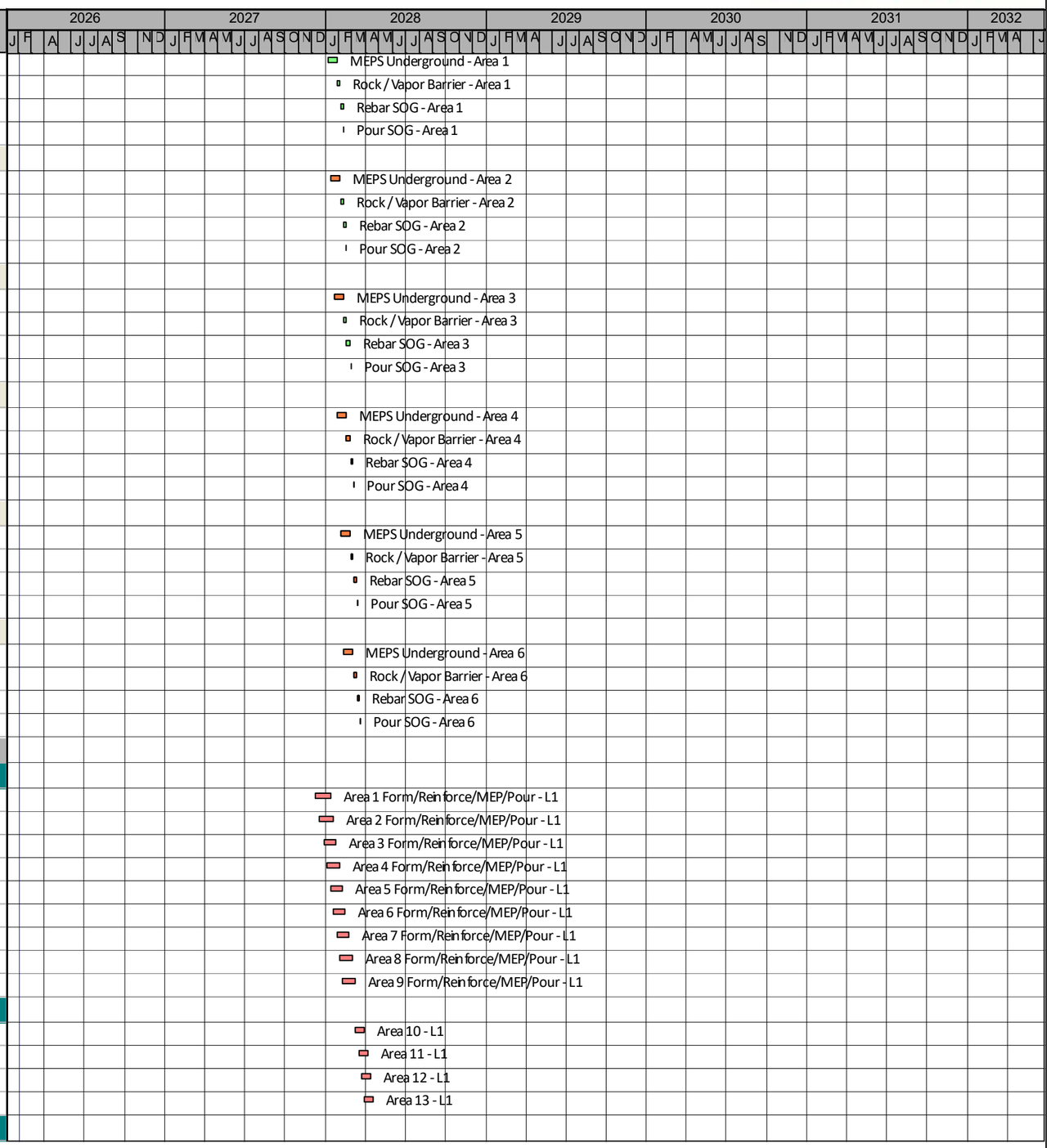
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#	Activity Name	OD	Start	Finish
637	Excavate to 2nd Row Tie Backs - Bryant, 17th & Mariposa (West)	20	Jul-27-27	Aug-23-27
638	Install 2nd Row Tie Backs / Lagging - Bryant, 17th & Mariposa (West)	20	Aug-10-27	Sep-07-27
639	Demo & Remove Asphalt & Footings in Parking Lot	5	Sep-08-27	Sep-14-27
640	Excavate to Bottom of Slab on Grade - Bryant, 17th & Mariposa (West)	40	Sep-15-27	Nov-09-27
641	Install Lagging Complete - Bryant, 17th & Mariposa (West)	20	Oct-27-27	Nov-23-27
642	Install Localized Dewatering Wells & Trenches	10	Nov-10-27	Nov-23-27
643	**Site Utilities / Civil Work**	690	Apr-27-27	Jan-25-30
644	**Site Utility Work**	75	Apr-27-27	Aug-11-27
645	Install Water Laterals & Temp Vaults on Bryant St (Coordinate w/ Concrete Pours)	25	Apr-27-27	Jun-01-27
646	Install Sewer & Storm Laterals on Mariposa St. (Coordinate w/ Concrete Pours)	25	Jun-02-27	Jul-07-27
647	Install Fire Water & DW Laterals on Mariposa St (Coordinate w/ Concrete Pours)	25	Jul-08-27	Aug-11-27
648	**Overhead Catenary System (Outside Building)**	165	Apr-03-29	Nov-26-29
649	Install New OCS Pole Bases & Boxes	20	Apr-03-29	Apr-30-29
650	Set New OCS Poles	20	Aug-23-29	Sep-20-29
651	OCS Installation	45	Sep-21-29	Nov-26-29
652	**Sidewalks / Landscaping / Street Paving**	205	Apr-03-29	Jan-25-30
653	Hampshire Street Sidewalks / Landscaping	100	Apr-03-29	Aug-22-29
654	17th Street Sidewalks/ Landscaping	100	Apr-17-29	Sep-06-29
655	Bryant Street Sidewalks / Landscaping	100	Jun-20-29	Nov-08-29
656	Mariposa Street Sidewalks /Landscaping	100	Jul-05-29	Nov-26-29
657	Hampshire Street Paving & Temp Striping	10	Nov-27-29	Dec-10-29
658	17th Street Paving & Temp Striping	10	Dec-11-29	Dec-26-29
659	Bryant Street Paving & Temp Striping	10	Dec-27-29	Jan-10-30
660	Mariposa Street Paving & Temp Striping	10	Jan-11-30	Jan-25-30
661	**Structure**	392	Nov-10-27	Jun-05-29
662	(LOE) Structure Duration (Rebar to Last Pour)	317	Dec-10-27	Mar-19-29
663	**Foundations - Structure**	88	Nov-10-27	Mar-20-28
664	**Foundations B1**	57	Nov-10-27	Feb-03-28
665	**Area 1 - Foundations B1**	52	Nov-10-27	Jan-27-28
666	Structural Excavation & Waterproofing - B1	10	Nov-10-27	Nov-23-27
667	Rebar Footings - B1	5	Dec-10-27	Dec-16-27
668	Hang Form/Embeds - B1	4	Dec-17-27	Dec-22-27
669	Pour Foundations - B1	5	Dec-23-27	Jan-03-28
670	Waterproof Walls - B1	5	Jan-04-28	Jan-10-28
671	Form / Rebar / Pour Columns - B1	5	Jan-11-28	Jan-17-28
672	Form / Rebar / Pour Walls - B1	8	Jan-18-28	Jan-27-28
673	**Area 2 - Foundations B1**	47	Nov-24-27	Feb-03-28
674	Structural Excavation & Waterproofing - B1	10	Nov-24-27	Dec-09-27
675	Rebar Footings - B1	5	Dec-17-27	Dec-23-27
676	Hang Form/Embeds - B1	4	Dec-28-27	Jan-03-28
677	Pour Foundations & - B1	5	Jan-04-28	Jan-10-28
678	Waterproof Walls - B1	5	Jan-11-28	Jan-17-28
679	Form / Rebar / Pour Columns - B1	5	Jan-18-28	Jan-24-28
680	Form / Rebar / Pour Walls - B1	8	Jan-25-28	Feb-03-28
681	**Slab on Grade**	51	Jan-07-28	Mar-20-28
682	**Area 1 - SOG**	26	Jan-07-28	Feb-11-28



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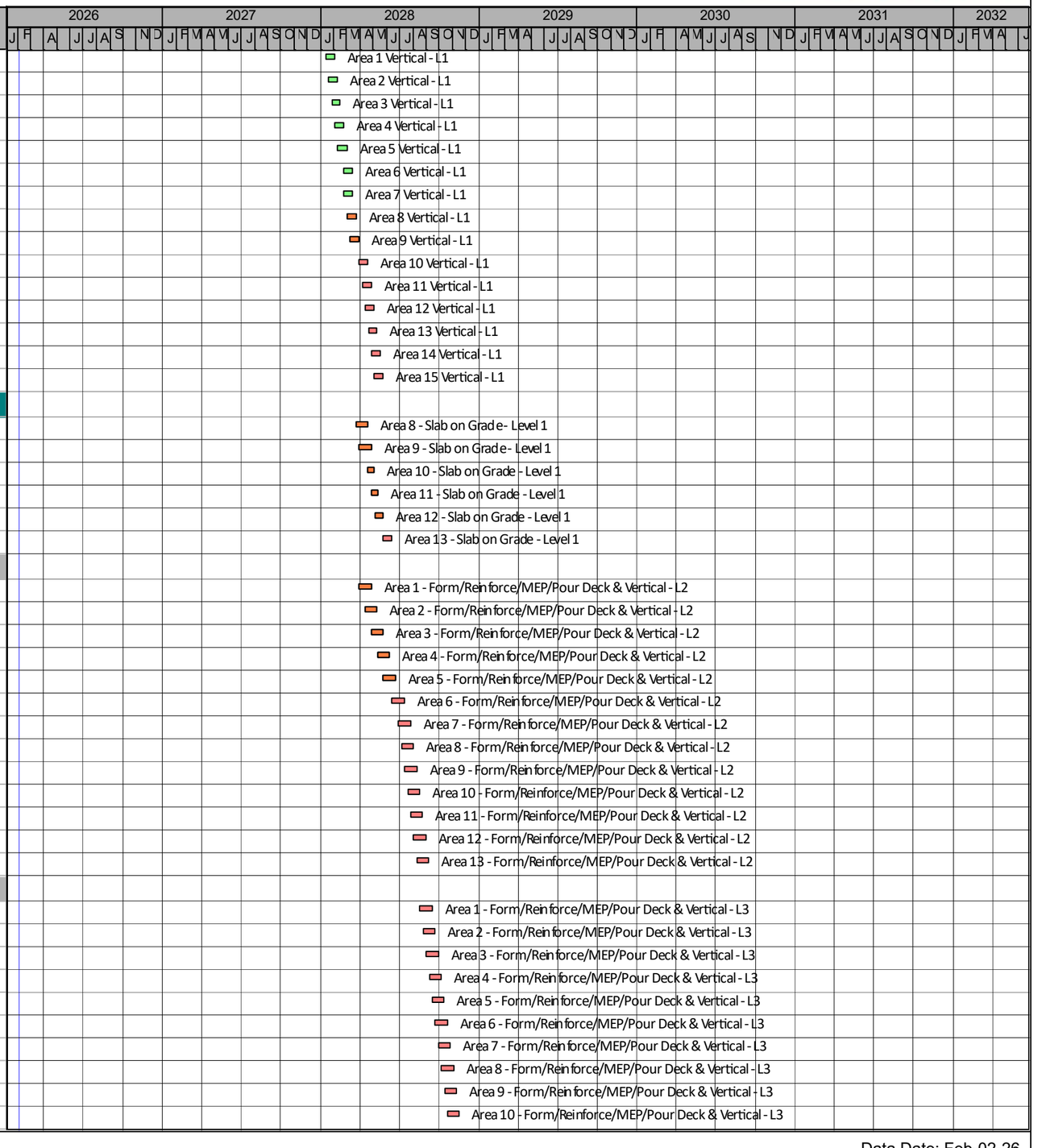
#	Activity Name	OD	Start	Finish
683	MEPS Underground - Area 1	15	Jan-07-28	Jan-27-28
684	Rock / Vapor Barrier - Area 1	5	Jan-28-28	Feb-03-28
685	Rebar SOG - Area 1	5	Feb-04-28	Feb-10-28
686	Pour SOG - Area 1	1	Feb-11-28	Feb-11-28
687	**Area 2 - SOG**	26	Jan-14-28	Feb-18-28
688	MEPS Underground - Area 2	15	Jan-14-28	Feb-03-28
689	Rock / Vapor Barrier - Area 2	5	Feb-04-28	Feb-10-28
690	Rebar SOG - Area 2	5	Feb-11-28	Feb-17-28
691	Pour SOG - Area 2	1	Feb-18-28	Feb-18-28
692	**Area 3 - SOG**	26	Jan-21-28	Feb-28-28
693	MEPS Underground - Area 3	15	Jan-21-28	Feb-10-28
694	Rock / Vapor Barrier - Area 3	5	Feb-11-28	Feb-17-28
695	Rebar SOG - Area 3	5	Feb-18-28	Feb-25-28
696	Pour SOG - Area 3	1	Feb-28-28	Feb-28-28
697	**Area 4 - SOG**	26	Jan-28-28	Mar-06-28
698	MEPS Underground - Area 4	15	Jan-28-28	Feb-17-28
699	Rock / Vapor Barrier - Area 4	5	Feb-18-28	Feb-25-28
700	Rebar SOG - Area 4	5	Feb-28-28	Mar-03-28
701	Pour SOG - Area 4	1	Mar-06-28	Mar-06-28
702	**Area 5 - SOG**	26	Feb-04-28	Mar-13-28
703	MEPS Underground - Area 5	15	Feb-04-28	Feb-25-28
704	Rock / Vapor Barrier - Area 5	5	Feb-28-28	Mar-03-28
705	Rebar SOG - Area 5	5	Mar-06-28	Mar-10-28
706	Pour SOG - Area 5	1	Mar-13-28	Mar-13-28
707	**Area 6 - SOG**	26	Feb-11-28	Mar-20-28
708	MEPS Underground - Area 6	15	Feb-11-28	Mar-03-28
709	Rock / Vapor Barrier - Area 6	5	Mar-06-28	Mar-10-28
710	Rebar SOG - Area 6	5	Mar-13-28	Mar-17-28
711	Pour SOG - Area 6	1	Mar-20-28	Mar-20-28
712	**Level 1 - Structure**	127	Dec-10-27	Jun-12-28
713	**Foundations - Level 1**	60	Dec-10-27	Mar-08-28
714	Area 1 Form/Reinforce/MEP/Pour - L1	20	Dec-10-27	Jan-11-28
715	Area 2 Form/Reinforce/MEP/Pour - L1	20	Dec-17-27	Jan-18-28
716	Area 3 Form/Reinforce/MEP/Pour - L1	20	Dec-28-27	Jan-25-28
717	Area 4 Form/Reinforce/MEP/Pour - L1	20	Jan-05-28	Feb-01-28
718	Area 5 Form/Reinforce/MEP/Pour - L1	20	Jan-12-28	Feb-08-28
719	Area 6 Form/Reinforce/MEP/Pour - L1	20	Jan-19-28	Feb-15-28
720	Area 7 Form/Reinforce/MEP/Pour - L1	20	Jan-26-28	Feb-23-28
721	Area 8 Form/Reinforce/MEP/Pour - L1	20	Feb-02-28	Mar-01-28
722	Area 9 Form/Reinforce/MEP/Pour - L1	20	Feb-09-28	Mar-08-28
723	**Elevated Decks - Level 1**	30	Mar-09-28	Apr-19-28
724	Area 10 - L1	15	Mar-09-28	Mar-29-28
725	Area 11 - L1	15	Mar-16-28	Apr-05-28
726	Area 12 - L1	15	Mar-23-28	Apr-12-28
727	Area 13 - L1	15	Mar-30-28	Apr-19-28
728	**Vertical - Level 1**	95	Jan-12-28	May-24-28



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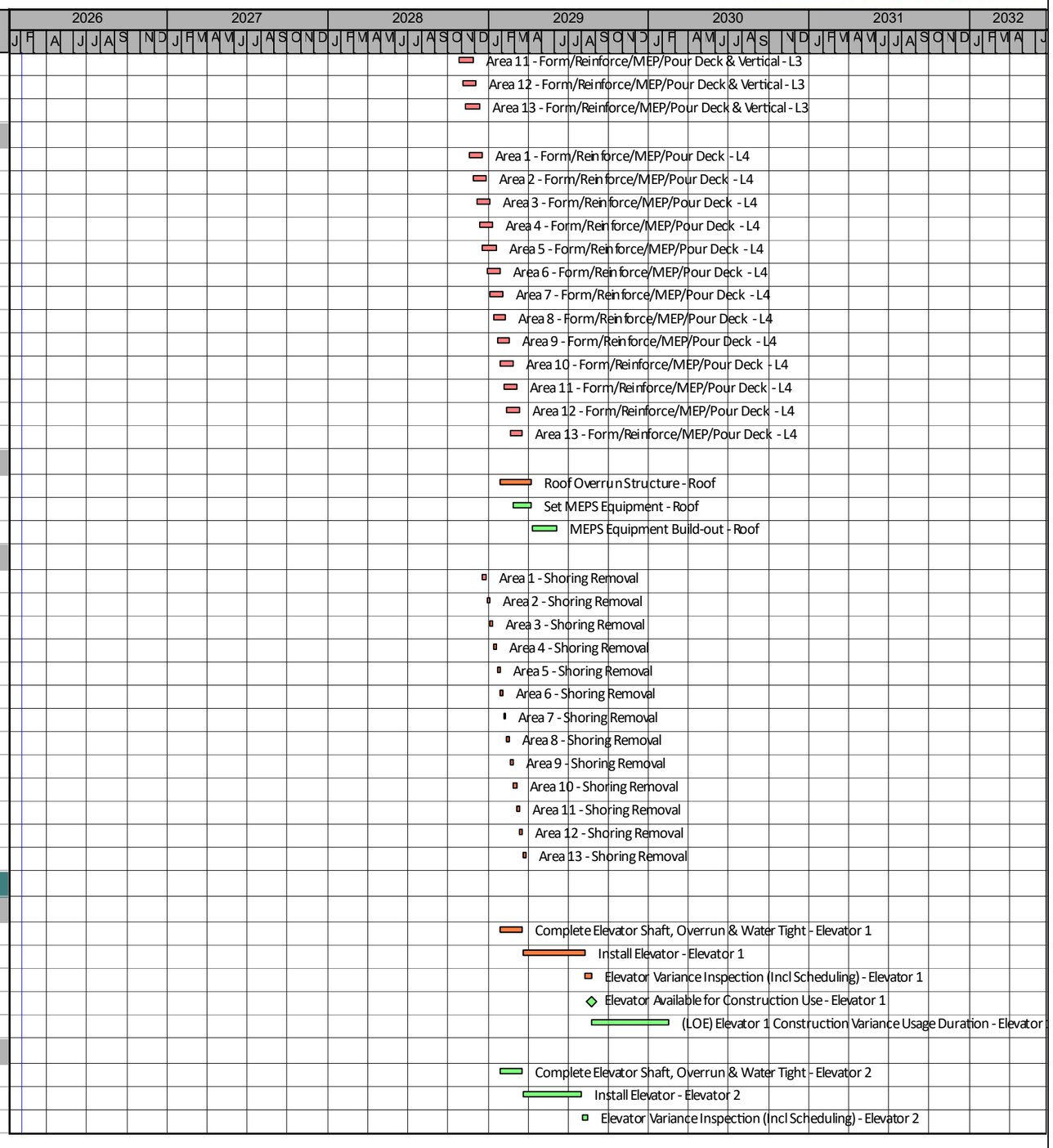
#	Activity Name	OD	Start	Finish
729	Area 1 Vertical - L1	15	Jan-12-28	Feb-01-28
730	Area 2 Vertical - L1	15	Jan-19-28	Feb-08-28
731	Area 3 Vertical - L1	15	Jan-26-28	Feb-15-28
732	Area 4 Vertical - L1	15	Feb-02-28	Feb-23-28
733	Area 5 Vertical - L1	15	Feb-09-28	Mar-01-28
734	Area 6 Vertical - L1	15	Feb-22-28	Mar-13-28
735	Area 7 Vertical - L1	15	Feb-24-28	Mar-15-28
736	Area 8 Vertical - L1	15	Mar-02-28	Mar-22-28
737	Area 9 Vertical - L1	15	Mar-09-28	Mar-29-28
738	Area 10 Vertical - L1	15	Mar-30-28	Apr-19-28
739	Area 11 Vertical - L1	15	Apr-06-28	Apr-26-28
740	Area 12 Vertical - L1	15	Apr-13-28	May-03-28
741	Area 13 Vertical - L1	15	Apr-20-28	May-10-28
742	Area 14 Vertical - L1	15	Apr-27-28	May-17-28
743	Area 15 Vertical - L1	15	May-04-28	May-24-28
744	**Slab on Grade - Level 1**	57	Mar-23-28	Jun-12-28
745	Area 8 - Slab on Grade - Level 1	20	Mar-23-28	Apr-19-28
746	Area 9 - Slab on Grade - Level 1	20	Mar-30-28	Apr-26-28
747	Area 10 - Slab on Grade - Level 1	12	Apr-18-28	May-03-28
748	Area 11 - Slab on Grade - Level 1	12	Apr-27-28	May-12-28
749	Area 12 - Slab on Grade - Level 1	12	May-05-28	May-22-28
750	Area 13 - Slab on Grade - Level 1	12	May-25-28	Jun-12-28
751	**Level 2 - Structure**	112	Mar-30-28	Sep-07-28
752	Area 1 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Mar-30-28	Apr-26-28
753	Area 2 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Apr-13-28	May-10-28
754	Area 3 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Apr-27-28	May-24-28
755	Area 4 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	May-11-28	Jun-08-28
756	Area 5 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	May-25-28	Jun-22-28
757	Area 6 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jun-13-28	Jul-12-28
758	Area 7 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jun-27-28	Jul-26-28
759	Area 8 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-06-28	Aug-02-28
760	Area 9 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-13-28	Aug-09-28
761	Area 10 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-20-28	Aug-16-28
762	Area 11 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-27-28	Aug-23-28
763	Area 12 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Aug-03-28	Aug-30-28
764	Area 13 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Aug-10-28	Sep-07-28
765	**Level 3 - Structure**	80	Aug-17-28	Dec-11-28
766	Area 1 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-17-28	Sep-14-28
767	Area 2 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-24-28	Sep-21-28
768	Area 3 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-31-28	Sep-28-28
769	Area 4 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-08-28	Oct-05-28
770	Area 5 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-15-28	Oct-12-28
771	Area 6 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-22-28	Oct-19-28
772	Area 7 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-29-28	Oct-26-28
773	Area 8 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-06-28	Nov-02-28
774	Area 9 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-13-28	Nov-09-28
775	Area 10 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-20-28	Nov-16-28



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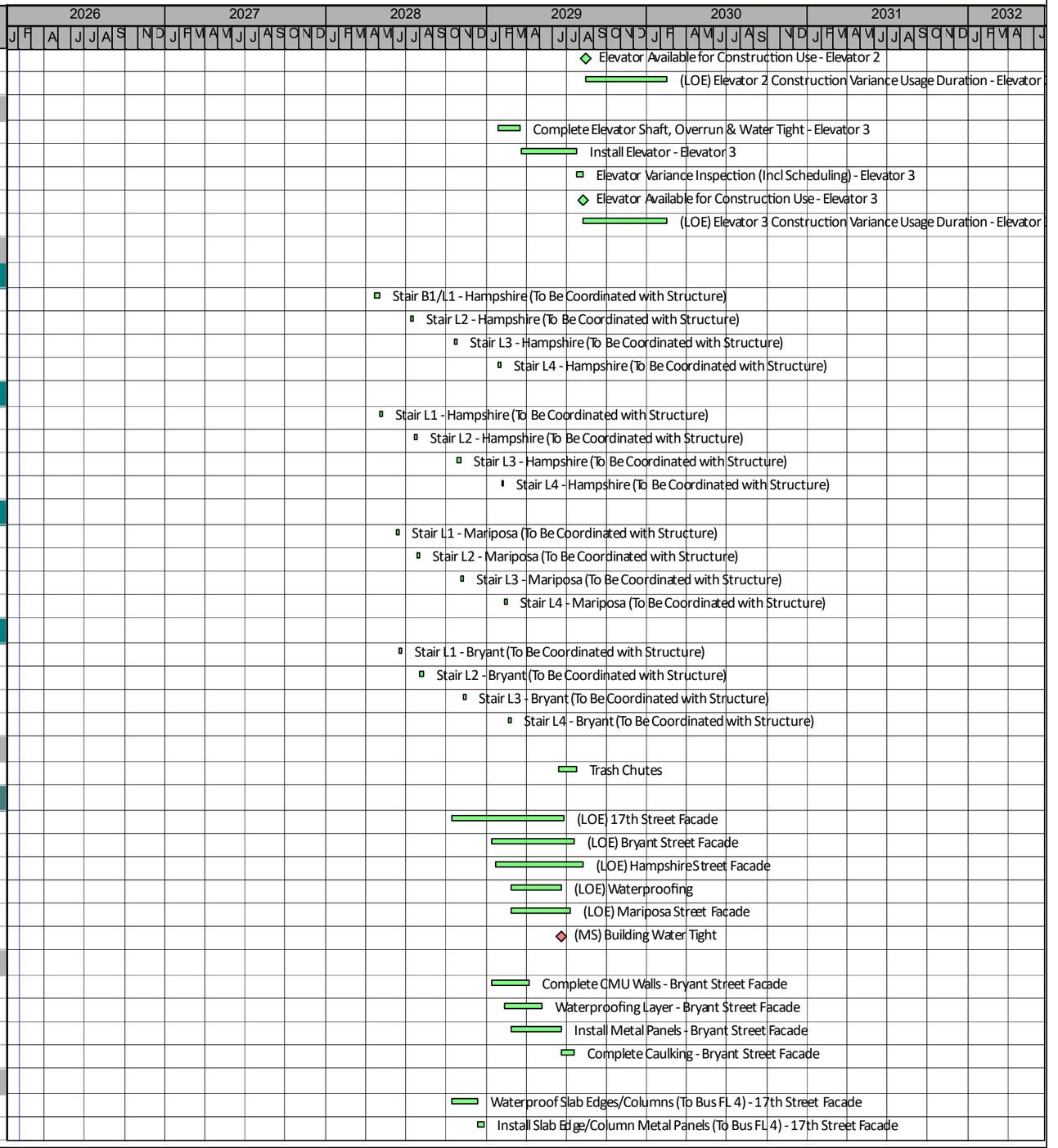
#	Activity Name	OD	Start	Finish
776	Area 11 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-27-28	Nov-27-28
777	Area 12 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Nov-03-28	Dec-04-28
778	Area 13 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Nov-10-28	Dec-11-28
779	**Level 4 - Structure**	80	Nov-17-28	Mar-19-29
780	Area 1 - Form/Reinforce/MEP/Pour Deck - L4	20	Nov-17-28	Dec-18-28
781	Area 2 - Form/Reinforce/MEP/Pour Deck - L4	20	Nov-28-28	Dec-27-28
782	Area 3 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-05-28	Jan-04-29
783	Area 4 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-12-28	Jan-11-29
784	Area 5 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-19-28	Jan-19-29
785	Area 6 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-28-28	Jan-26-29
786	Area 7 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-05-29	Feb-02-29
787	Area 8 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-12-29	Feb-09-29
788	(LOE) Structure	20	Jan-22-29	Feb-16-29
789	Area 10 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-29-29	Feb-26-29
790	Area 11 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-05-29	Mar-05-29
791	Area 12 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-12-29	Mar-12-29
792	Area 13 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-20-29	Mar-19-29
793	**Roof Overrun**	90	Jan-29-29	Jun-05-29
794	Roof Overrun Structure - Roof	50	Jan-29-29	Apr-09-29
795	Set MEPS Equipment - Roof	30	Feb-27-29	Apr-09-29
796	MEPS Equipment Build-out - Roof	40	Apr-10-29	Jun-05-29
797	**Shoring Removal**	65	Dec-19-28	Mar-26-29
798	Area 1 - Shoring Removal	5	Dec-19-28	Dec-27-28
799	Area 2 - Shoring Removal	5	Dec-28-28	Jan-04-29
800	Area 3 - Shoring Removal	5	Jan-05-29	Jan-11-29
801	Area 4 - Shoring Removal	5	Jan-12-29	Jan-19-29
802	Area 5 - Shoring Removal	5	Jan-22-29	Jan-26-29
803	Area 6 - Shoring Removal	5	Jan-29-29	Feb-02-29
804	Area 7 - Shoring Removal	5	Feb-05-29	Feb-09-29
805	Area 8 - Shoring Removal	5	Feb-12-29	Feb-16-29
806	Area 9 - Shoring Removal	5	Feb-20-29	Feb-26-29
807	Area 10 - Shoring Removal	5	Feb-27-29	Mar-05-29
808	Area 11 - Shoring Removal	5	Mar-06-29	Mar-12-29
809	Area 12 - Shoring Removal	5	Mar-13-29	Mar-19-29
810	Area 13 - Shoring Removal	5	Mar-20-29	Mar-26-29
811	**Elevators & Stairs**	457	Apr-20-28	Feb-15-30
812	**Elevator 1 - Basement to Roof (17th St)**	265	Jan-29-29	Feb-15-30
813	Complete Elevator Shaft, Overrun & Water Tight - Elevator 1	35	Jan-29-29	Mar-19-29
814	Install Elevator - Elevator 1	100	Mar-20-29	Aug-08-29
815	Elevator Variance Inspection (Incl Scheduling) - Elevator 1	10	Aug-09-29	Aug-22-29
816	Elevator Available for Construction Use - Elevator 1	0	Aug-23-29	
817	(LOE) Elevator 1 Construction Variance Usage Duration - Elevator 1	120	Aug-23-29	Feb-15-30
818	**Elevator 2 - Basement to L4 (Mariposa St)**	265	Jan-29-29	Feb-15-30
819	Complete Elevator Shaft, Overrun & Water Tight - Elevator 2	35	Jan-29-29	Mar-19-29
820	Install Elevator - Elevator 2	95	Mar-20-29	Aug-01-29
821	Elevator Variance Inspection (Incl Scheduling) - Elevator 2	10	Aug-02-29	Aug-15-29



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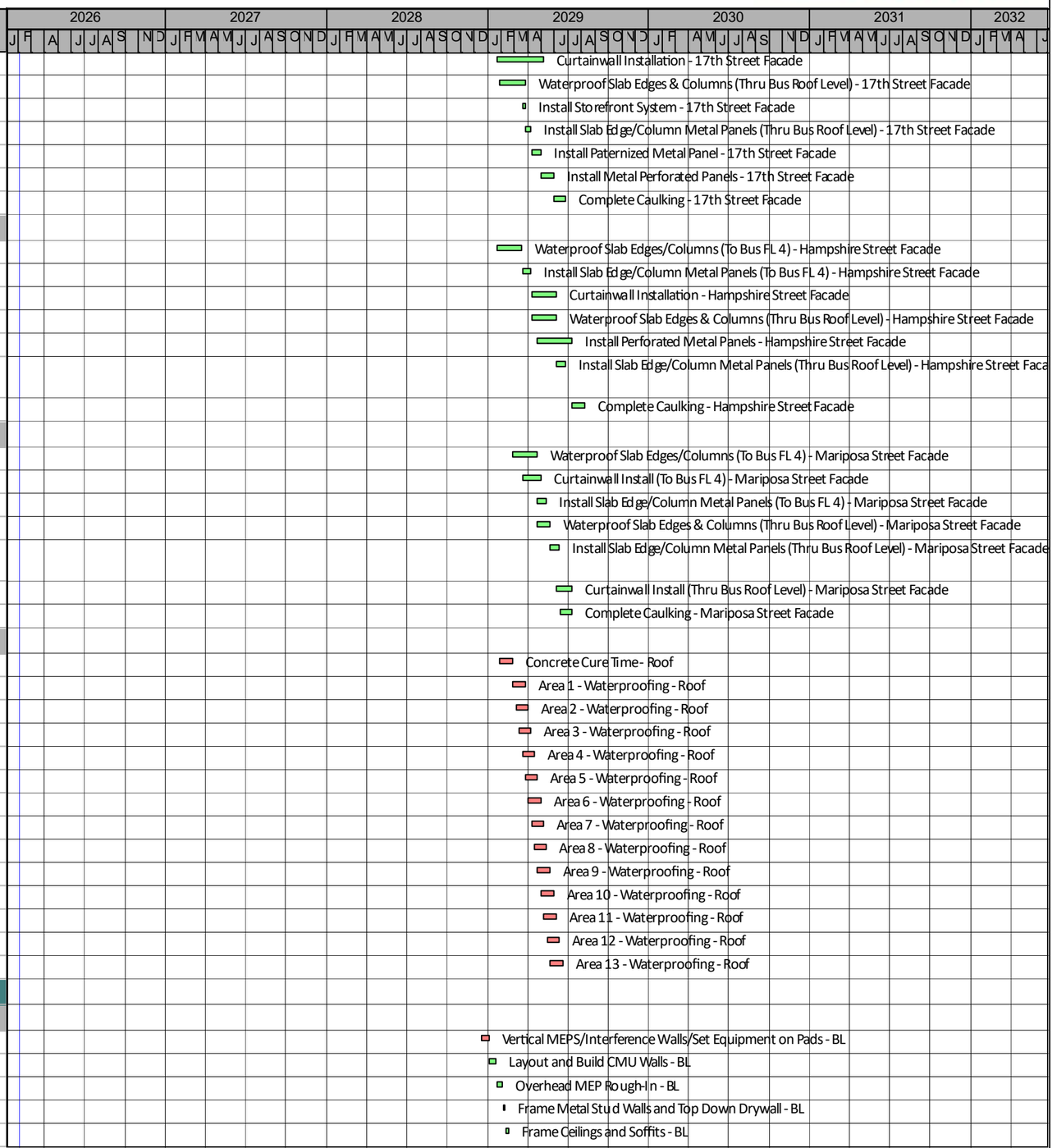
#	Activity Name	OD	Start	Finish
822	Elevator Available for Construction Use - Elevator 2	0	Aug-16-29	
823	(LOE) Elevator 2 Construction Variance Usage Duration - Elevator 2	125	Aug-16-29	Feb-15-30
824	**Elevator 3 - Ground to L4 (Hampshire St)**	265	Jan-29-29	Feb-15-30
825	Complete Elevator Shaft, Overrun & Water Tight - Elevator 3	35	Jan-29-29	Mar-19-29
826	Install Elevator - Elevator 3	90	Mar-20-29	Jul-25-29
827	Elevator Variance Inspection (Incl Scheduling) - Elevator 3	10	Jul-26-29	Aug-08-29
828	Elevator Available for Construction Use - Elevator 3	0	Aug-09-29	
829	(LOE) Elevator 3 Construction Variance Usage Duration - Elevator 3	130	Aug-09-29	Feb-15-30
830	**Stairs**	212	Apr-20-28	Feb-26-29
831	**Hampshire (South)**	197	Apr-20-28	Feb-02-29
832	Stair B1/L1 - Hampshire (To Be Coordinated with Structure)	10	Apr-20-28	May-03-28
833	Stair L2 - Hampshire (To Be Coordinated with Structure)	5	Jul-13-28	Jul-19-28
834	Stair L3 - Hampshire (To Be Coordinated with Structure)	5	Oct-20-28	Oct-26-28
835	Stair L4 - Hampshire (To Be Coordinated with Structure)	5	Jan-29-29	Feb-02-29
836	**Hampshire (North)**	192	May-04-28	Feb-09-29
837	Stair L1 - Hampshire (To Be Coordinated with Structure)	5	May-04-28	May-10-28
838	Stair L2 - Hampshire (To Be Coordinated with Structure)	5	Jul-20-28	Jul-26-28
839	Stair L3 - Hampshire (To Be Coordinated with Structure)	5	Oct-27-28	Nov-02-28
840	Stair L4 - Hampshire (To Be Coordinated with Structure)	5	Feb-05-29	Feb-09-29
841	**Mariposa**	172	Jun-09-28	Feb-16-29
842	Stair L1 - Mariposa (To Be Coordinated with Structure)	5	Jun-09-28	Jun-15-28
843	Stair L2 - Mariposa (To Be Coordinated with Structure)	5	Jul-27-28	Aug-02-28
844	Stair L3 - Mariposa (To Be Coordinated with Structure)	5	Nov-03-28	Nov-09-28
845	Stair L4 - Mariposa (To Be Coordinated with Structure)	5	Feb-12-29	Feb-16-29
846	**17th & Bryant**	172	Jun-16-28	Feb-26-29
847	Stair L1 - Bryant (To Be Coordinated with Structure)	5	Jun-16-28	Jun-22-28
848	Stair L2 - Bryant (To Be Coordinated with Structure)	5	Aug-03-28	Aug-09-28
849	Stair L3 - Bryant (To Be Coordinated with Structure)	5	Nov-10-28	Nov-16-28
850	Stair L4 - Bryant (To Be Coordinated with Structure)	5	Feb-20-29	Feb-26-29
851	**Trash Chutes**	30	Jun-13-29	Jul-25-29
852	Trash Chutes	30	Jun-13-29	Jul-25-29
853	**Building Facade & Roofing**	205	Oct-13-28	Aug-08-29
854	(LOE) 17th Street Facade	175	Oct-13-28	Jun-26-29
855	(LOE) Bryant Street Facade	130	Jan-12-29	Jul-18-29
856	(LOE) HampshireStreet Facade	140	Jan-22-29	Aug-08-29
857	(LOE) Waterproofing	80	Feb-27-29	Jun-19-29
858	(LOE) Mariposa Street Facade	95	Feb-27-29	Jul-11-29
859	(MS) Building Water Tight	0		Jun-19-29
860	**Bryant St Facade**	130	Jan-12-29	Jul-18-29
861	Complete CMU Walls - Bryant Street Facade	60	Jan-12-29	Apr-09-29
862	Waterproofing Layer - Bryant Street Facade	60	Feb-12-29	May-07-29
863	Install Metal Panels - Bryant Street Facade	80	Feb-27-29	Jun-19-29
864	Complete Caulking - Bryant Street Facade	20	Jun-20-29	Jul-18-29
865	**17th Street Facade**	175	Oct-13-28	Jun-26-29
866	Waterproof Slab Edges/Columns (To Bus FL 4) - 17th Street Facade	40	Oct-13-28	Dec-11-28
867	Install Slab Edge/Column Metal Panels (To Bus FL 4) - 17th Street Facade	10	Dec-12-28	Dec-27-28



Potrero Yard Modernization
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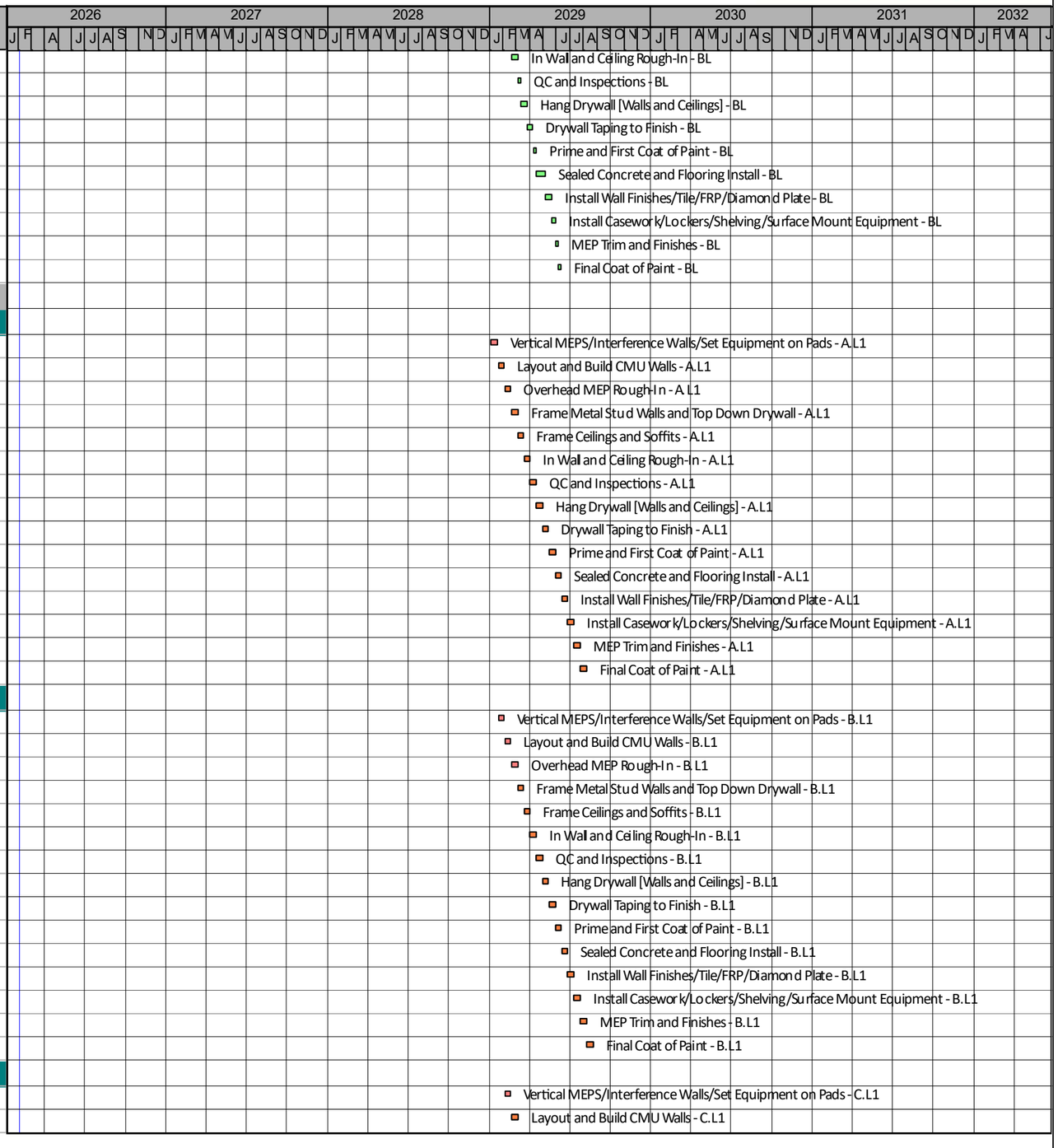
#	Activity Name	OD	Start	Finish
868	Curtainwall Installation - 17th Street Facade	75	Jan-22-29	May-07-29
869	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - 17th Street Facade	40	Jan-29-29	Mar-26-29
870	Install Storefront System - 17th Street Facade	5	Mar-20-29	Mar-26-29
871	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - 17th Street Facade	10	Mar-27-29	Apr-09-29
872	Install Paternized Metal Panel - 17th Street Facade	15	Apr-10-29	Apr-30-29
873	Install Metal Perforated Panels - 17th Street Facade	20	May-01-29	May-29-29
874	Complete Caulking - 17th Street Facade	20	May-30-29	Jun-26-29
875	**Hampshire St Facade**	140	Jan-22-29	Aug-08-29
876	Waterproof Slab Edges/Columns (To Bus FL 4) - Hampshire Street Facade	40	Jan-22-29	Mar-19-29
877	Install Slab Edge/Column Metal Panels (To Bus FL 4) - Hampshire Street Facade	15	Mar-20-29	Apr-09-29
878	Curtainwall Installation - Hampshire Street Facade	40	Apr-10-29	Jun-05-29
879	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - Hampshire Street Facade	40	Apr-10-29	Jun-05-29
880	Install Perforated Metal Panels - Hampshire Street Facade	55	Apr-24-29	Jul-11-29
881	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - Hampshire Street Facade	15	Jun-06-29	Jun-26-29
882	Complete Caulking - Hampshire Street Facade	20	Jul-12-29	Aug-08-29
883	**Mariposa Facade**	95	Feb-27-29	Jul-11-29
884	Waterproof Slab Edges/Columns (To Bus FL 4) - Mariposa Street Facade	40	Feb-27-29	Apr-23-29
885	Curtainwall Install (To Bus FL 4) - Mariposa Street Facade	30	Mar-20-29	Apr-30-29
886	Install Slab Edge/Column Metal Panels (To Bus FL 4) - Mariposa Street Facade	15	Apr-24-29	May-14-29
887	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - Mariposa Street Facade	20	Apr-24-29	May-21-29
888	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - Mariposa Street Facade	15	May-22-29	Jun-12-29
889	Curtainwall Install (Thru Bus Roof Level) - Mariposa Street Facade	25	Jun-06-29	Jul-11-29
890	Complete Caulking - Mariposa Street Facade	20	Jun-13-29	Jul-11-29
891	**Roofing System**	100	Jan-29-29	Jun-19-29
892	Concrete Cure Time - Roof	20	Jan-29-29	Feb-26-29
893	Area 1 - Waterproofing - Roof	20	Feb-27-29	Mar-26-29
894	Area 2 - Waterproofing - Roof	20	Mar-06-29	Apr-02-29
895	Area 3 - Waterproofing - Roof	20	Mar-13-29	Apr-09-29
896	Area 4 - Waterproofing - Roof	20	Mar-20-29	Apr-16-29
897	Area 5 - Waterproofing - Roof	20	Mar-27-29	Apr-23-29
898	Area 6 - Waterproofing - Roof	20	Apr-03-29	Apr-30-29
899	Area 7 - Waterproofing - Roof	20	Apr-10-29	May-07-29
900	Area 8 - Waterproofing - Roof	20	Apr-17-29	May-14-29
901	Area 9 - Waterproofing - Roof	20	Apr-24-29	May-21-29
902	Area 10 - Waterproofing - Roof	20	May-01-29	May-29-29
903	Area 11 - Waterproofing - Roof	20	May-08-29	Jun-05-29
904	Area 12 - Waterproofing - Roof	20	May-15-29	Jun-12-29
905	Area 13 - Waterproofing - Roof	20	May-22-29	Jun-19-29
906	**Interior Construction**	290	Dec-19-28	Feb-15-30
907	**Basement Level**	120	Dec-19-28	Jun-12-29
908	Vertical MEPS/Interference Walls/Set Equipment on Pads - BL	10	Dec-19-28	Jan-04-29
909	Layout and Build CMU Walls - BL	10	Jan-05-29	Jan-19-29
910	Overhead MEP Rough-In - BL	10	Jan-22-29	Feb-02-29
911	Frame Metal Stud Walls and Top Down Drywall - BL	5	Feb-05-29	Feb-09-29
912	Frame Ceilings and Soffits - BL	5	Feb-12-29	Feb-16-29



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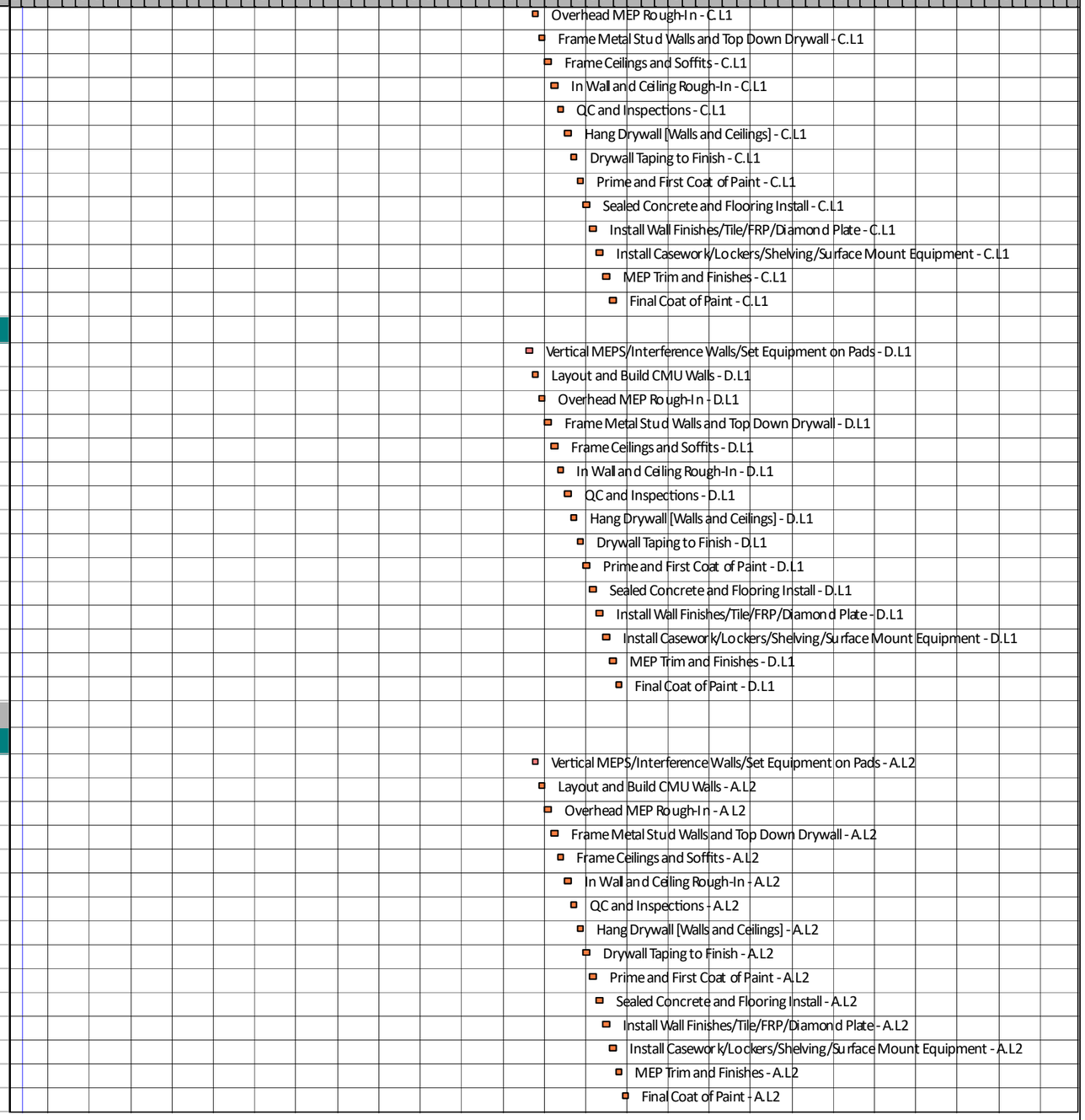
#	Activity Name	OD	Start	Finish
913	In Wall and Ceiling Rough-In - BL	10	Feb-20-29	Mar-05-29
914	QC and Inspections - BL	5	Mar-06-29	Mar-12-29
915	Hang Drywall [Walls and Ceilings] - BL	10	Mar-13-29	Mar-26-29
916		10	Mar-27-29	Apr-09-29
917	Prime and First Coat of Paint - BL	5	Apr-10-29	Apr-16-29
918	Sealed Concrete and Flooring Install - BL	15	Apr-17-29	May-07-29
919	Install Wall Finishes/Tile/FRP/Diamond Plate - BL	10	May-08-29	May-21-29
920	Install Casework/Lockers/Shelving/Surface Mount Equipment - BL	5	May-22-29	May-29-29
921	MEP Trim and Finishes - BL	5	May-30-29	Jun-05-29
922	Final Coat of Paint - BL	5	Jun-06-29	Jun-12-29
923	**Ground Level**	180	Jan-05-29	Sep-20-29
924	**Area A.L1**	150	Jan-05-29	Aug-08-29
925	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L1	10	Jan-05-29	Jan-19-29
926	Layout and Build CMU Walls - A.L1	10	Jan-22-29	Feb-02-29
927	Overhead MEP Rough-In - A.L1	10	Feb-05-29	Feb-16-29
928	Frame Metal Stud Walls and Top Down Drywall - A.L1	10	Feb-20-29	Mar-05-29
929	Frame Ceilings and Soffits - A.L1	10	Mar-06-29	Mar-19-29
930	In Wall and Ceiling Rough-In - A.L1	10	Mar-20-29	Apr-02-29
931	QC and Inspections - A.L1	10	Apr-03-29	Apr-16-29
932	Hang Drywall [Walls and Ceilings] - A.L1	10	Apr-17-29	Apr-30-29
933	Drywall Taping to Finish - A.L1	10	May-01-29	May-14-29
934	Prime and First Coat of Paint - A.L1	10	May-15-29	May-29-29
935	Sealed Concrete and Flooring Install - A.L1	10	May-30-29	Jun-12-29
936	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L1	10	Jun-13-29	Jun-26-29
937	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L1	10	Jun-27-29	Jul-11-29
938	MEP Trim and Finishes - A.L1	10	Jul-12-29	Jul-25-29
939	Final Coat of Paint - A.L1	10	Jul-26-29	Aug-08-29
940	**Area B.L1**	150	Jan-22-29	Aug-22-29
941	Vertical MEPS/Interference Walls/Set Equipment on Pads - B.L1	10	Jan-22-29	Feb-02-29
942	Layout and Build CMU Walls - B.L1	10	Feb-05-29	Feb-16-29
943	Overhead MEP Rough-In - B.L1	10	Feb-20-29	Mar-05-29
944	Frame Metal Stud Walls and Top Down Drywall - B.L1	10	Mar-06-29	Mar-19-29
945	Frame Ceilings and Soffits - B.L1	10	Mar-20-29	Apr-02-29
946	In Wall and Ceiling Rough-In - B.L1	10	Apr-03-29	Apr-16-29
947	QC and Inspections - B.L1	10	Apr-17-29	Apr-30-29
948	Hang Drywall [Walls and Ceilings] - B.L1	10	May-01-29	May-14-29
949	Drywall Taping to Finish - B.L1	10	May-15-29	May-29-29
950	Prime and First Coat of Paint - B.L1	10	May-30-29	Jun-12-29
951	Sealed Concrete and Flooring Install - B.L1	10	Jun-13-29	Jun-26-29
952	Install Wall Finishes/Tile/FRP/Diamond Plate - B.L1	10	Jun-27-29	Jul-11-29
953	Install Casework/Lockers/Shelving/Surface Mount Equipment - B.L1	10	Jul-12-29	Jul-25-29
954	MEP Trim and Finishes - B.L1	10	Jul-26-29	Aug-08-29
955	Final Coat of Paint - B.L1	10	Aug-09-29	Aug-22-29
956	**Area C.L1**	150	Feb-05-29	Sep-06-29
957	Vertical MEPS/Interference Walls/Set Equipment on Pads - C.L1	10	Feb-05-29	Feb-16-29
958	Layout and Build CMU Walls - C.L1	10	Feb-20-29	Mar-05-29



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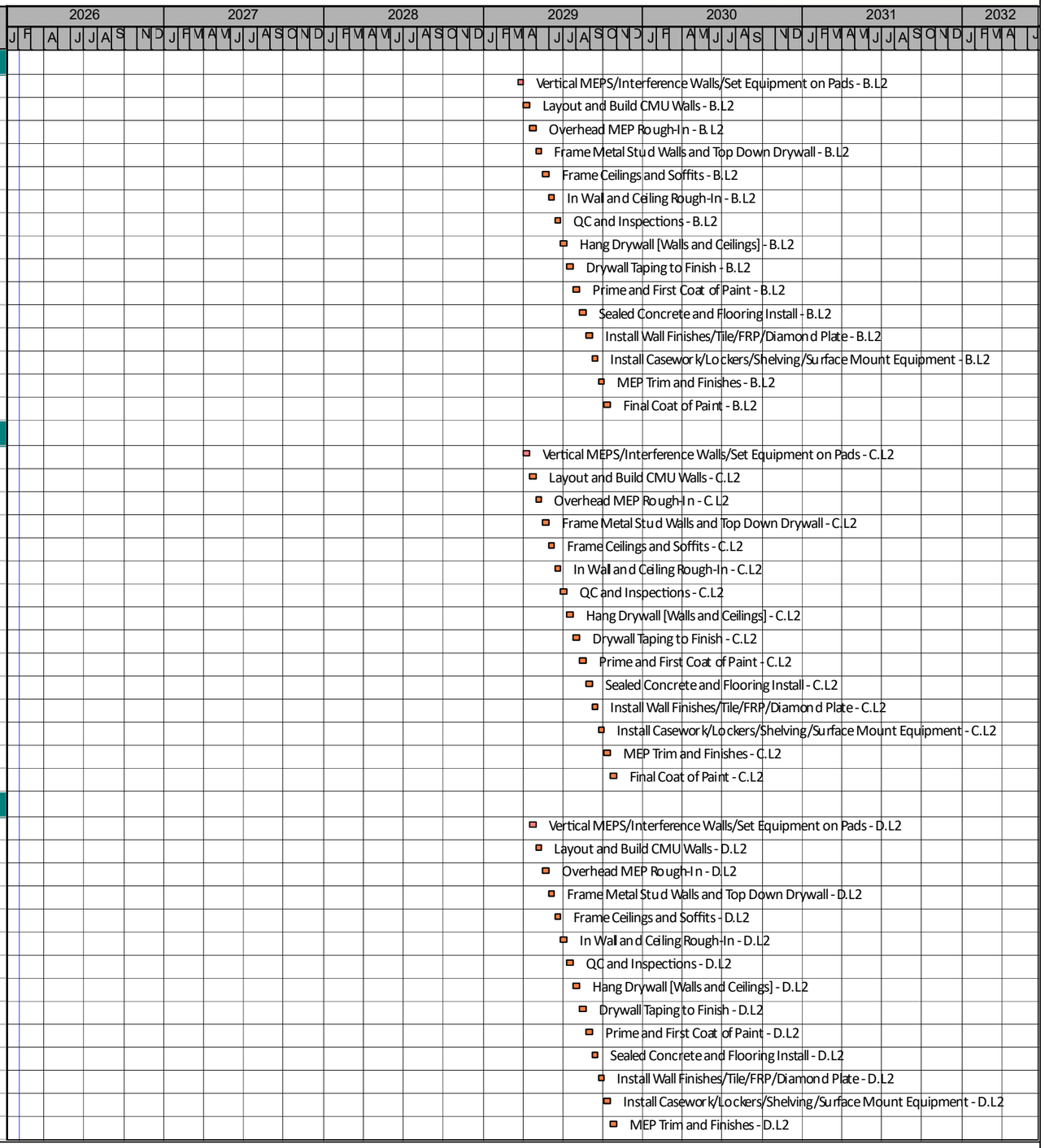
#	Activity Name	OD	Start	Finish
959	Overhead MEP Rough-In - C.L1	10	Mar-06-29	Mar-19-29
960	Frame Metal Stud Walls and Top Down Drywall - C.L1	10	Mar-20-29	Apr-02-29
961	Frame Ceilings and Soffits - C.L1	10	Apr-03-29	Apr-16-29
962	In Wall and Ceiling Rough-In - C.L1	10	Apr-17-29	Apr-30-29
963	QC and Inspections - C.L1	10	May-01-29	May-14-29
964	Hang Drywall [Walls and Ceilings] - C.L1	10	May-15-29	May-29-29
965	Drywall Taping to Finish - C.L1	10	May-30-29	Jun-12-29
966	Prime and First Coat of Paint - C.L1	10	Jun-13-29	Jun-26-29
967	Sealed Concrete and Flooring Install - C.L1	10	Jun-27-29	Jul-11-29
968	Install Wall Finishes/Tile/FRP/Diamond Plate - C.L1	10	Jul-12-29	Jul-25-29
969	Install Casework/Lockers/Shelving/Surface Mount Equipment - C.L1	10	Jul-26-29	Aug-08-29
970	MEP Trim and Finishes - C.L1	10	Aug-09-29	Aug-22-29
971	Final Coat of Paint - C.L1	10	Aug-23-29	Sep-06-29
972	**Area D.L1**	150	Feb-20-29	Sep-20-29
973	Vertical MEPS/Interference Walls/Set Equipment on Pads - D.L1	10	Feb-20-29	Mar-05-29
974	Layout and Build CMU Walls - D.L1	10	Mar-06-29	Mar-19-29
975	Overhead MEP Rough-In - D.L1	10	Mar-20-29	Apr-02-29
976	Frame Metal Stud Walls and Top Down Drywall - D.L1	10	Apr-03-29	Apr-16-29
977	Frame Ceilings and Soffits - D.L1	10	Apr-17-29	Apr-30-29
978	In Wall and Ceiling Rough-In - D.L1	10	May-01-29	May-14-29
979	QC and Inspections - D.L1	10	May-15-29	May-29-29
980	Hang Drywall [Walls and Ceilings] - D.L1	10	May-30-29	Jun-12-29
981	Drywall Taping to Finish - D.L1	10	Jun-13-29	Jun-26-29
982	Prime and First Coat of Paint - D.L1	10	Jun-27-29	Jul-11-29
983	Sealed Concrete and Flooring Install - D.L1	10	Jul-12-29	Jul-25-29
984	Install Wall Finishes/Tile/FRP/Diamond Plate - D.L1	10	Jul-26-29	Aug-08-29
985	Install Casework/Lockers/Shelving/Surface Mount Equipment - D.L1	10	Aug-09-29	Aug-22-29
986	MEP Trim and Finishes - D.L1	10	Aug-23-29	Sep-06-29
987	Final Coat of Paint - D.L1	10	Sep-07-29	Sep-20-29
988	**Level 2**	190	Mar-06-29	Dec-03-29
989	**Area A.L2**	150	Mar-06-29	Oct-04-29
990	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L2	10	Mar-06-29	Mar-19-29
991	Layout and Build CMU Walls - A.L2	10	Mar-20-29	Apr-02-29
992	Overhead MEP Rough-In - A.L2	10	Apr-03-29	Apr-16-29
993	Frame Metal Stud Walls and Top Down Drywall - A.L2	10	Apr-17-29	Apr-30-29
994	Frame Ceilings and Soffits - A.L2	10	May-01-29	May-14-29
995	In Wall and Ceiling Rough-In - A.L2	10	May-15-29	May-29-29
996	QC and Inspections - A.L2	10	May-30-29	Jun-12-29
997	Hang Drywall [Walls and Ceilings] - A.L2	10	Jun-13-29	Jun-26-29
998	Drywall Taping to Finish - A.L2	10	Jun-27-29	Jul-11-29
999	Prime and First Coat of Paint - A.L2	10	Jul-12-29	Jul-25-29
1000	Sealed Concrete and Flooring Install - A.L2	10	Jul-26-29	Aug-08-29
1001	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L2	10	Aug-09-29	Aug-22-29
1002	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L2	10	Aug-23-29	Sep-06-29
1003	MEP Trim and Finishes - A.L2	10	Sep-07-29	Sep-20-29
1004	Final Coat of Paint - A.L2	10	Sep-21-29	Oct-04-29



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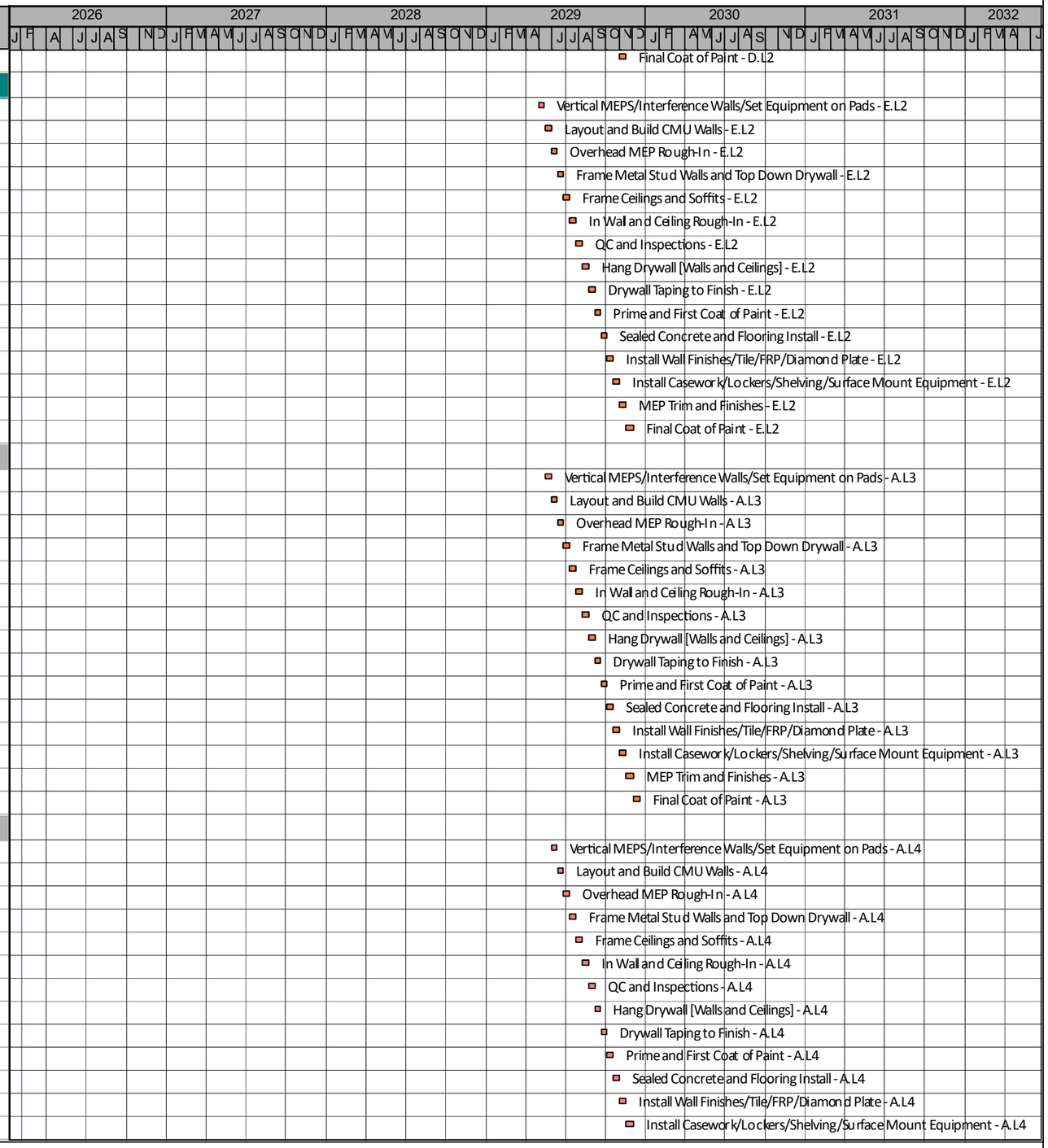
#	Activity Name	OD	Start	Finish
1005	**Area B.L2**	150	Mar-20-29	Oct-18-29
1006	Vertical MEPS/Interference Walls/Set Equipment on Pads - B.L2	10	Mar-20-29	Apr-02-29
1007	Layout and Build CMU Walls - B.L2	10	Apr-03-29	Apr-16-29
1008	Overhead MEP Rough-In - B.L2	10	Apr-17-29	Apr-30-29
1009	Frame Metal Stud Walls and Top Down Drywall - B.L2	10	May-01-29	May-14-29
1010	Frame Ceilings and Soffits - B.L2	10	May-15-29	May-29-29
1011	In Wall and Ceiling Rough-In - B.L2	10	May-30-29	Jun-12-29
1012	QC and Inspections - B.L2	10	Jun-13-29	Jun-26-29
1013	Hang Drywall [Walls and Ceilings] - B.L2	10	Jun-27-29	Jul-11-29
1014	Drywall Taping to Finish - B.L2	10	Jul-12-29	Jul-25-29
1015	Prime and First Coat of Paint - B.L2	10	Jul-26-29	Aug-08-29
1016	Sealed Concrete and Flooring Install - B.L2	10	Aug-09-29	Aug-22-29
1017	Install Wall Finishes/Tile/FRP/Diamond Plate - B.L2	10	Aug-23-29	Sep-06-29
1018	Install Casework/Lockers/Shelving/Surface Mount Equipment - B.L2	10	Sep-07-29	Sep-20-29
1019	MEP Trim and Finishes - B.L2	10	Sep-21-29	Oct-04-29
1020	Final Coat of Paint - B.L2	10	Oct-05-29	Oct-18-29
1021	**Area C.L2**	150	Apr-03-29	Nov-01-29
1022	Vertical MEPS/Interference Walls/Set Equipment on Pads - C.L2	10	Apr-03-29	Apr-16-29
1023	Layout and Build CMU Walls - C.L2	10	Apr-17-29	Apr-30-29
1024	Overhead MEP Rough-In - C.L2	10	May-01-29	May-14-29
1025	Frame Metal Stud Walls and Top Down Drywall - C.L2	10	May-15-29	May-29-29
1026	Frame Ceilings and Soffits - C.L2	10	May-30-29	Jun-12-29
1027	In Wall and Ceiling Rough-In - C.L2	10	Jun-13-29	Jun-26-29
1028	QC and Inspections - C.L2	10	Jun-27-29	Jul-11-29
1029	Hang Drywall [Walls and Ceilings] - C.L2	10	Jul-12-29	Jul-25-29
1030	Drywall Taping to Finish - C.L2	10	Jul-26-29	Aug-08-29
1031	Prime and First Coat of Paint - C.L2	10	Aug-09-29	Aug-22-29
1032	Sealed Concrete and Flooring Install - C.L2	10	Aug-23-29	Sep-06-29
1033	Install Wall Finishes/Tile/FRP/Diamond Plate - C.L2	10	Sep-07-29	Sep-20-29
1034	Install Casework/Lockers/Shelving/Surface Mount Equipment - C.L2	10	Sep-21-29	Oct-04-29
1035	MEP Trim and Finishes - C.L2	10	Oct-05-29	Oct-18-29
1036	Final Coat of Paint - C.L2	10	Oct-19-29	Nov-01-29
1037	**Area D.L2**	150	Apr-17-29	Nov-15-29
1038	Vertical MEPS/Interference Walls/Set Equipment on Pads - D.L2	10	Apr-17-29	Apr-30-29
1039	Layout and Build CMU Walls - D.L2	10	May-01-29	May-14-29
1040	Overhead MEP Rough-In - D.L2	10	May-15-29	May-29-29
1041	Frame Metal Stud Walls and Top Down Drywall - D.L2	10	May-30-29	Jun-12-29
1042	Frame Ceilings and Soffits - D.L2	10	Jun-13-29	Jun-26-29
1043	In Wall and Ceiling Rough-In - D.L2	10	Jun-27-29	Jul-11-29
1044	QC and Inspections - D.L2	10	Jul-12-29	Jul-25-29
1045	Hang Drywall [Walls and Ceilings] - D.L2	10	Jul-26-29	Aug-08-29
1046	Drywall Taping to Finish - D.L2	10	Aug-09-29	Aug-22-29
1047	Prime and First Coat of Paint - D.L2	10	Aug-23-29	Sep-06-29
1048	Sealed Concrete and Flooring Install - D.L2	10	Sep-07-29	Sep-20-29
1049	Install Wall Finishes/Tile/FRP/Diamond Plate - D.L2	10	Sep-21-29	Oct-04-29
1050	Install Casework/Lockers/Shelving/Surface Mount Equipment - D.L2	10	Oct-05-29	Oct-18-29
1051	MEP Trim and Finishes - D.L2	10	Oct-19-29	Nov-01-29



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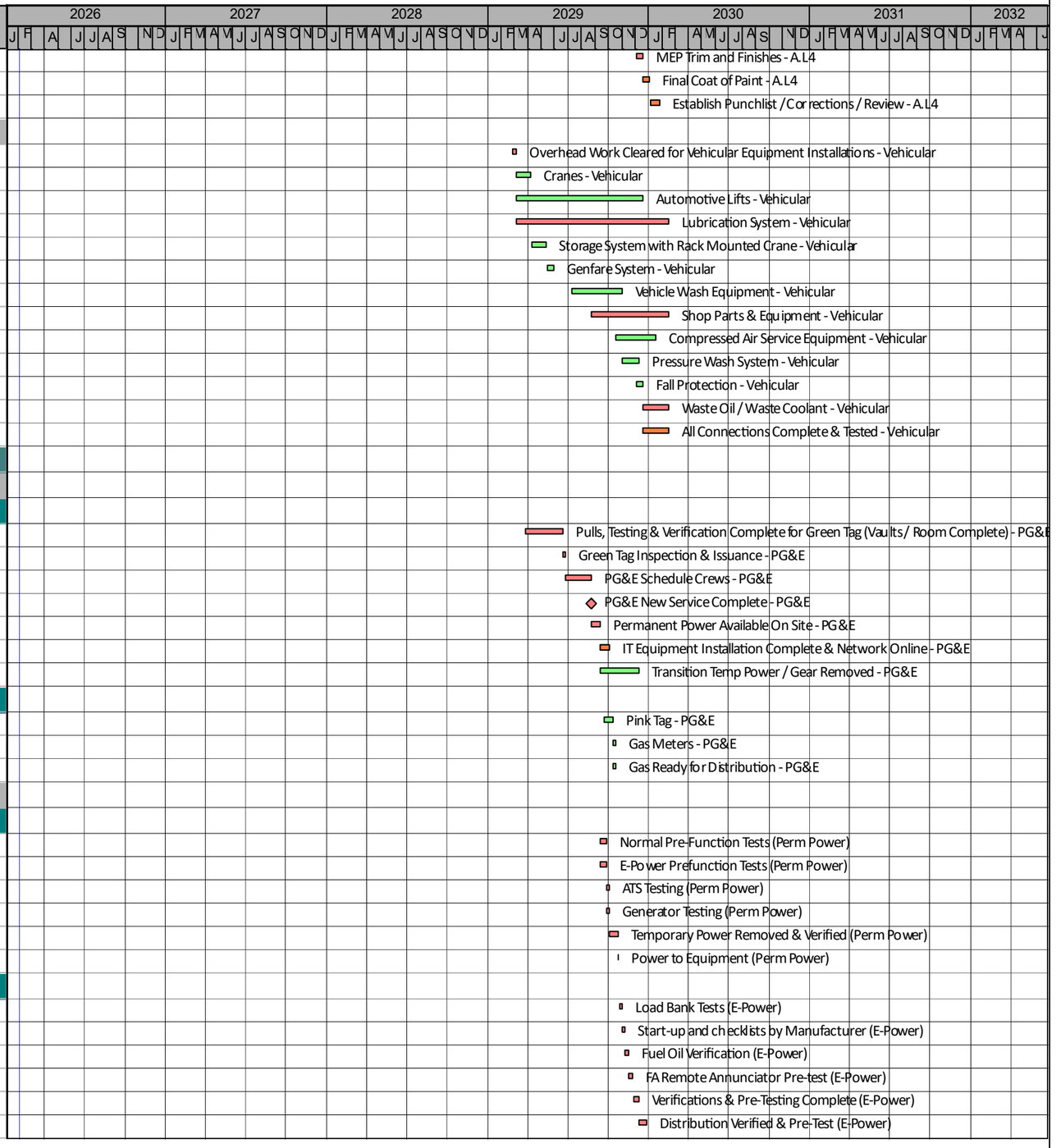
#	Activity Name	OD	Start	Finish
1052	Final Coat of Paint - D.L2	10	Nov-02-29	Nov-15-29
1053	**Area E.L2**	150	May-01-29	Dec-03-29
1054	Vertical MEPS/Interference Walls/Set Equipment on Pads - E.L2	10	May-01-29	May-14-29
1055	Layout and Build CMU Walls - E.L2	10	May-15-29	May-29-29
1056	Overhead MEP Rough-In - E.L2	10	May-30-29	Jun-12-29
1057	Frame Metal Stud Walls and Top Down Drywall - E.L2	10	Jun-13-29	Jun-26-29
1058	Frame Ceilings and Soffits - E.L2	10	Jun-27-29	Jul-11-29
1059	In Wall and Ceiling Rough-In - E.L2	10	Jul-12-29	Jul-25-29
1060	QC and Inspections - E.L2	10	Jul-26-29	Aug-08-29
1061	Hang Drywall [Walls and Ceilings] - E.L2	10	Aug-09-29	Aug-22-29
1062	Drywall Taping to Finish - E.L2	10	Aug-23-29	Sep-06-29
1063	Prime and First Coat of Paint - E.L2	10	Sep-07-29	Sep-20-29
1064	Sealed Concrete and Flooring Install - E.L2	10	Sep-21-29	Oct-04-29
1065	Install Wall Finishes/Tile/FRP/Diamond Plate - E.L2	10	Oct-05-29	Oct-18-29
1066	Install Casework/Lockers/Shelving/Surface Mount Equipment - E.L2	10	Oct-19-29	Nov-01-29
1067	MEP Trim and Finishes - E.L2	10	Nov-02-29	Nov-15-29
1068	Final Coat of Paint - E.L2	10	Nov-16-29	Dec-03-29
1069	**Level 3**	150	May-15-29	Dec-17-29
1070	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L3	10	May-15-29	May-29-29
1071	Layout and Build CMU Walls - A.L3	10	May-30-29	Jun-12-29
1072	Overhead MEP Rough-In - A.L3	10	Jun-13-29	Jun-26-29
1073	Frame Metal Stud Walls and Top Down Drywall - A.L3	10	Jun-27-29	Jul-11-29
1074	Frame Ceilings and Soffits - A.L3	10	Jul-12-29	Jul-25-29
1075	In Wall and Ceiling Rough-In - A.L3	10	Jul-26-29	Aug-08-29
1076	QC and Inspections - A.L3	10	Aug-09-29	Aug-22-29
1077	Hang Drywall [Walls and Ceilings] - A.L3	10	Aug-23-29	Sep-06-29
1078	Drywall Taping to Finish - A.L3	10	Sep-07-29	Sep-20-29
1079	Prime and First Coat of Paint - A.L3	10	Sep-21-29	Oct-04-29
1080	Sealed Concrete and Flooring Install - A.L3	10	Oct-05-29	Oct-18-29
1081	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L3	10	Oct-19-29	Nov-01-29
1082	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L3	10	Nov-02-29	Nov-15-29
1083	MEP Trim and Finishes - A.L3	10	Nov-16-29	Dec-03-29
1084	Final Coat of Paint - A.L3	10	Dec-04-29	Dec-17-29
1085	**Level 4**	165	May-30-29	Jan-25-30
1086	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L4	10	May-30-29	Jun-12-29
1087	Layout and Build CMU Walls - A.L4	10	Jun-13-29	Jun-26-29
1088	Overhead MEP Rough-In - A.L4	10	Jun-27-29	Jul-11-29
1089	Frame Metal Stud Walls and Top Down Drywall - A.L4	10	Jul-12-29	Jul-25-29
1090	Frame Ceilings and Soffits - A.L4	10	Jul-26-29	Aug-08-29
1091	In Wall and Ceiling Rough-In - A.L4	10	Aug-09-29	Aug-22-29
1092	QC and Inspections - A.L4	10	Aug-23-29	Sep-06-29
1093	Hang Drywall [Walls and Ceilings] - A.L4	10	Sep-07-29	Sep-20-29
1094	Drywall Taping to Finish - A.L4	10	Sep-21-29	Oct-04-29
1095	Prime and First Coat of Paint - A.L4	10	Oct-05-29	Oct-18-29
1096	Sealed Concrete and Flooring Install - A.L4	10	Oct-19-29	Nov-01-29
1097	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L4	10	Nov-02-29	Nov-15-29
1098	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L4	10	Nov-16-29	Dec-03-29



Potrero Yard Modernization
Final Initial Schedule

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#	Activity Name	OD	Start	Finish
1099	MEP Trim and Finishes - A.L4	10	Dec-04-29	Dec-17-29
1100	Final Coat of Paint - A.L4	10	Dec-18-29	Jan-03-30
1101	Establish Punchlist / Corrections / Review - A.L4	15	Jan-04-30	Jan-25-30
1102	**Vehicular**	245	Feb-27-29	Feb-15-30
1103	Overhead Work Cleared for Vehicular Equipment Installations - Vehicular	5	Feb-27-29	Mar-05-29
1104	Cranes - Vehicular	25	Mar-06-29	Apr-09-29
1105	Automotive Lifts - Vehicular	200	Mar-06-29	Dec-17-29
1106	Lubrication System - Vehicular	240	Mar-06-29	Feb-15-30
1107	Storage System with Rack Mounted Crane - Vehicular	25	Apr-10-29	May-14-29
1108	Genfare System - Vehicular	10	May-15-29	May-29-29
1109	Vehicle Wash Equipment - Vehicular	80	Jul-12-29	Nov-01-29
1110	Shop Parts & Equipment - Vehicular	120	Aug-23-29	Feb-15-30
1111	Compressed Air Service Equipment - Vehicular	60	Oct-19-29	Jan-17-30
1112	Pressure Wash System - Vehicular	25	Nov-02-29	Dec-10-29
1113	Fall Protection - Vehicular	10	Dec-04-29	Dec-17-29
1114	Waste Oil / Waste Coolant - Vehicular	40	Dec-18-29	Feb-15-30
1115	All Connections Complete & Tested - Vehicular	40	Dec-18-29	Feb-15-30
1116	**Start-Up & Commissioning**	440	Mar-27-29	Dec-23-30
1117	**Commissioning: PG&E**	180	Mar-27-29	Dec-10-29
1118	**Permanent Power & Network**	180	Mar-27-29	Dec-10-29
1119	Pulls, Testing & Verification Complete for Green Tag (Vaults / Room Complete) - PG&E	60	Mar-27-29	Jun-19-29
1120	Green Tag Inspection & Issuance - PG&E	5	Jun-20-29	Jun-26-29
1121	PG&E Schedule Crews - PG&E	40	Jun-27-29	Aug-22-29
1122	PG&E New Service Complete - PG&E	0		Aug-22-29
1123	Permanent Power Available On Site - PG&E	15	Aug-23-29	Sep-13-29
1124	IT Equipment Installation Complete & Network Online - PG&E	15	Sep-14-29	Oct-04-29
1125	Transition Temp Power / Gear Removed - PG&E	60	Sep-14-29	Dec-10-29
1126	**Natural Gas (Pending TR Equipment Reference)**	20	Sep-21-29	Oct-18-29
1127	Pink Tag - PG&E	15	Sep-21-29	Oct-11-29
1128	Gas Meters - PG&E	5	Oct-12-29	Oct-18-29
1129	Gas Ready for Distribution - PG&E	5	Oct-12-29	Oct-18-29
1130	**Commissioning: Electrical**	90	Sep-14-29	Jan-25-30
1131	**Electrical Distribution**	30	Sep-14-29	Oct-25-29
1132	Normal Pre-Function Tests (Perm Power)	10	Sep-14-29	Sep-27-29
1133	E-Power Prefunction Tests (Perm Power)	10	Sep-14-29	Sep-27-29
1134	ATS Testing (Perm Power)	5	Sep-28-29	Oct-04-29
1135	Generator Testing (Perm Power)	5	Sep-28-29	Oct-04-29
1136	Temporary Power Removed & Verified (Perm Power)	15	Oct-05-29	Oct-25-29
1137	Power to Equipment (Perm Power)	1	Oct-25-29	Oct-25-29
1138	**Generators**	40	Oct-26-29	Dec-26-29
1139	Load Bank Tests (E-Power)	5	Oct-26-29	Nov-01-29
1140	Start-up and checklists by Manufacturer (E-Power)	5	Nov-02-29	Nov-08-29
1141	Fuel Oil Verification (E-Power)	5	Nov-09-29	Nov-15-29
1142	FA Remote Annunciator Pre-test (E-Power)	5	Nov-16-29	Nov-26-29
1143	Verifications & Pre-Testing Complete (E-Power)	10	Nov-27-29	Dec-10-29
1144	Distribution Verified & Pre-Test (E-Power)	10	Dec-11-29	Dec-26-29



Potrero Yard Modernization
Final Initial Schedule

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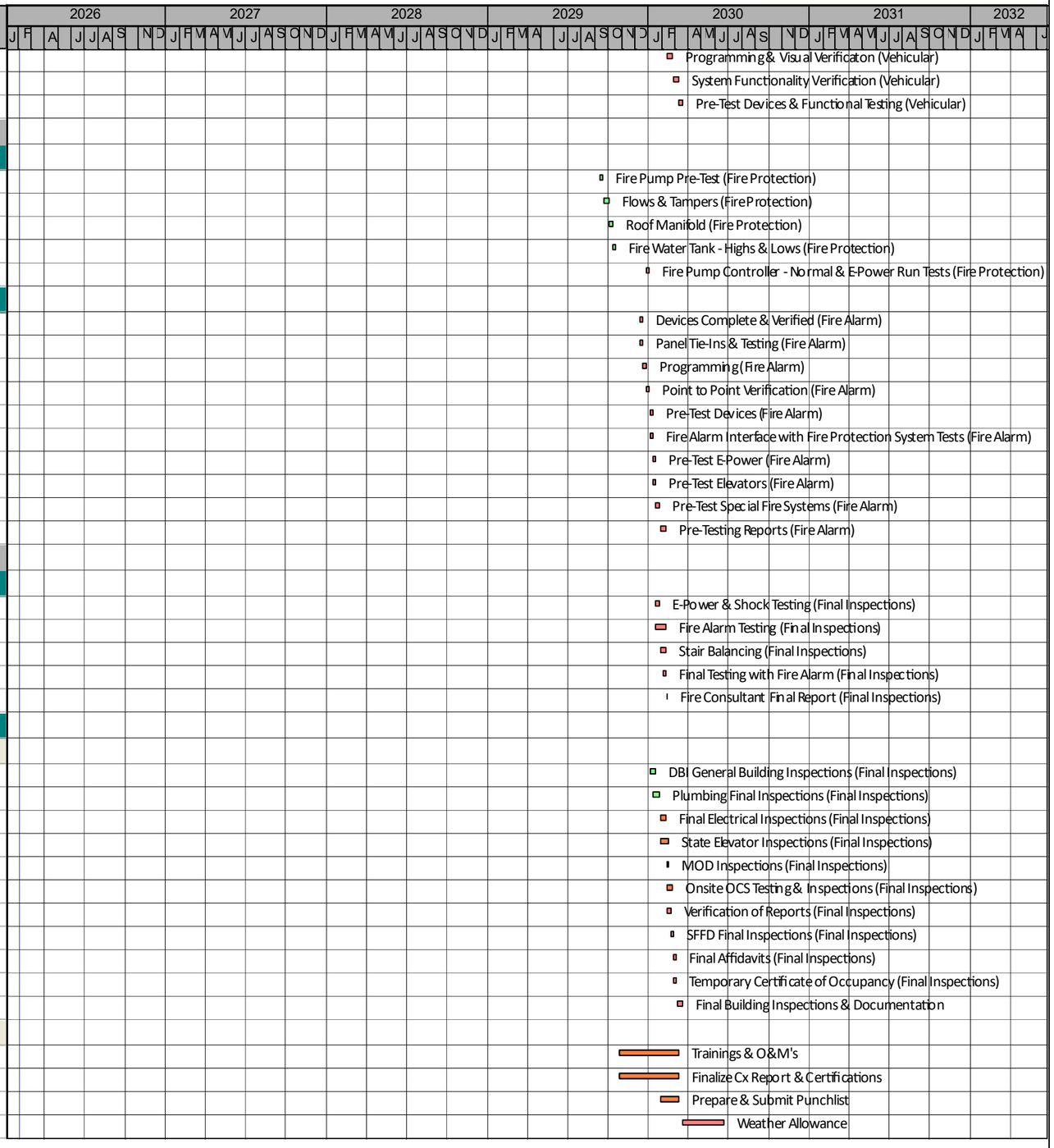
#	Activity Name	OD	Start	Finish
1145	**Lighting Control**	25	Dec-18-29	Jan-25-30
1146	Point to Point Testing (Lighting Control)	5	Dec-18-29	Dec-26-29
1147	Programming (Lighting Control)	10	Dec-27-29	Jan-10-30
1148	Functional Testing (Lighting Control)	10	Jan-11-30	Jan-25-30
1149	Fire Alarm Interface Testing (Lighting Control)	5	Jan-18-30	Jan-25-30
1150	**Commissioning: Plumbing**	60	Oct-12-29	Jan-10-30
1151	**Domestic Water**	60	Oct-12-29	Jan-10-30
1152	POC, Power and Controls Complete (DW)	5	Oct-12-29	Oct-18-29
1153	Booster Pump (DW)	5	Oct-19-29	Oct-25-29
1154	Back Flow Preventer Complete (DW)	5	Oct-19-29	Oct-25-29
1155	Make-Up Water to MEPS Equipment (DW)	10	Oct-26-29	Nov-08-29
1156	Chlorination & Bacterial Tests (DW)	15	Dec-18-29	Jan-10-30
1157	**Storm / Sewer**	10	Oct-19-29	Nov-01-29
1158	PCO, Power & Controls To Laterals Complete (Storm/SS)	5	Oct-19-29	Oct-25-29
1159	Pre-Testing (Storm/SS)	5	Oct-26-29	Nov-01-29
1160	Functional Testing (Storm/SS)	5	Oct-26-29	Nov-01-29
1161	**Commissioning: Fuel Oil**	25	Sep-21-29	Oct-25-29
1162	Point to Point Verification & Controls (Fuel Oil)	5	Sep-21-29	Sep-27-29
1163	Leak Detecting Pre-Testing (Fuel Oil)	5	Sep-28-29	Oct-04-29
1164	Fill Panel Pre-Testing (Fuel Oil)	5	Oct-05-29	Oct-11-29
1165	Interface with Fire Alarm Pre-Testing (Fuel Oil)	5	Oct-12-29	Oct-18-29
1166	Pre-Testing with Generators (Fuel Oil)	10	Oct-12-29	Oct-25-29
1167	**Commissioning: Mechanical**	60	Oct-26-29	Jan-25-30
1168	**Boilers & Pumps**	40	Oct-26-29	Dec-26-29
1169	Terminate Electrical & BMS (Mech-Boilers)	5	Oct-26-29	Nov-01-29
1170	Clearing & Troubleshooting (Mech-Boilers)	10	Nov-02-29	Nov-15-29
1171	Pre-Start Inspections (Mech-Boilers)	5	Nov-09-29	Nov-15-29
1172	Fill / Flush Boiler & Pumps (Mech-Boilers)	15	Nov-16-29	Dec-10-29
1173	Factory Start-up (Mech-Boilers)	5	Dec-11-29	Dec-17-29
1174	Hot Water Functional Testing (Mech-Boilers)	5	Dec-18-29	Dec-26-29
1175	**Chillers**	40	Nov-02-29	Jan-03-30
1176	Terminate Electrical & BMS (Mech-Chillers)	5	Nov-02-29	Nov-08-29
1177	Clearing & Troubleshooting (Mech-Chillers)	10	Nov-09-29	Nov-26-29
1178	Pre-Start Inspections (Mech-Chillers)	5	Nov-16-29	Nov-26-29
1179	Fill/Flush Chillers & Pumps (Mech-Chillers)	15	Nov-27-29	Dec-17-29
1180	Factory Start-Up (Mech-Chillers)	5	Dec-18-29	Dec-26-29
1181	Chilled Water Functional Tests (Mech-Chillers)	5	Dec-27-29	Jan-03-30
1182	**AHU's & Exhaust**	30	Oct-26-29	Dec-10-29
1183	Terminate Electrical & BMS (Mech-AHUs)	5	Oct-26-29	Nov-01-29
1184	Clearing & Troubleshooting (Mech-AHUs)	10	Nov-02-29	Nov-15-29
1185	Start-Up & Functional Testing / Balance (Mech-AHUs)	15	Nov-16-29	Dec-10-29
1186	**Balancing (TAB)**	30	Dec-11-29	Jan-25-30
1187	Basement & Level 1 (Mech-TAB)	15	Dec-11-29	Jan-03-30
1188	Level 2 & 3 [SWING SHIFT] (Mech-TAB)	20	Dec-18-29	Jan-17-30
1189	Misc (As Applicable to FA Inspections) - TAB & Report [SWING SHIFT] (Mech-TAB)	15	Jan-04-30	Jan-25-30
1190	**Commissioning: Vehicular**	25	Feb-11-30	Mar-18-30



Potrero Yard Modernization
Final Initial Schedule

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#	Activity Name	OD	Start	Finish
1191	Programming & Visual Verificaton (Vehicular)	10	Feb-11-30	Feb-25-30
1192	System Functionality Verification (Vehicular)	10	Feb-26-30	Mar-11-30
1193	Pre-Test Devices & Functional Testing (Vehicular)	5	Mar-12-30	Mar-18-30
1194	**Commissioning: Fire Life Safety**	100	Sep-14-29	Feb-08-30
1195	**Fire Protection**	75	Sep-14-29	Jan-03-30
1196	Fire Pump Pre-Test (Fire Protection)	5	Sep-14-29	Sep-20-29
1197	Flows & Tampers (Fire Protection)	10	Sep-21-29	Oct-04-29
1198	Roof Manifold (Fire Protection)	5	Oct-05-29	Oct-11-29
1199	Fire Water Tank - Highs & Lows (Fire Protection)	5	Oct-12-29	Oct-18-29
1200	Fire Pump Controller - Normal & E-Power Run Tests (Fire Protection)	5	Dec-27-29	Jan-03-30
1201	**Fire Alarm**	39	Dec-12-29	Feb-08-30
1202	Devices Complete & Verified (Fire Alarm)	4	Dec-12-29	Dec-17-29
1203	Panel Tie-Ins & Testing (Fire Alarm)	4	Dec-12-29	Dec-17-29
1204	Programming (Fire Alarm)	5	Dec-18-29	Dec-26-29
1205	Point to Point Verification (Fire Alarm)	5	Dec-27-29	Jan-03-30
1206	Pre-Test Devices (Fire Alarm)	5	Jan-04-30	Jan-10-30
1207	Fire Alarm Interface with Fire Protection System Tests (Fire Alarm)	5	Jan-04-30	Jan-10-30
1208	Pre-Test E-Power (Fire Alarm)	5	Jan-11-30	Jan-17-30
1209	Pre-Test Elevators (Fire Alarm)	5	Jan-11-30	Jan-17-30
1210	Pre-Test Special Fire Systems (Fire Alarm)	5	Jan-18-30	Jan-25-30
1211	Pre-Testing Reports (Fire Alarm)	10	Jan-28-30	Feb-08-30
1212	**Commissioning: Final Inspections**	290	Oct-26-29	Dec-23-30
1213	**Testing & Reports**	17	Jan-18-30	Feb-12-30
1214	E-Power & Shock Testing (Final Inspections)	5	Jan-18-30	Jan-25-30
1215	Fire Alarm Testing (Final Inspections)	15	Jan-18-30	Feb-08-30
1216	Stair Balancing (Final Inspections)	10	Jan-28-30	Feb-08-30
1217	Final Testing with Fire Alarm (Final Inspections)	5	Feb-04-30	Feb-08-30
1218	Fire Consultant Final Report (Final Inspections)	2	Feb-11-30	Feb-12-30
1219	**Final Sign-offs**	290	Oct-26-29	Dec-23-30
1220	**Inspections**	50	Jan-04-30	Mar-18-30
1221	DBI General Building Inspections (Final Inspections)	10	Jan-04-30	Jan-17-30
1222	Plumbing Final Inspections (Final Inspections)	10	Jan-11-30	Jan-25-30
1223	Final Electrical Inspections (Final Inspections)	10	Jan-28-30	Feb-08-30
1224	State Elevator Inspections (Final Inspections)	15	Jan-28-30	Feb-15-30
1225	MOD Inspections (Final Inspections)	5	Feb-11-30	Feb-15-30
1226	Onsite OCS Testing & Inspections (Final Inspections)	10	Feb-11-30	Feb-25-30
1227	Verification of Reports (Final Inspections)	5	Feb-13-30	Feb-20-30
1228	SFFD Final Inspections (Final Inspections)	5	Feb-21-30	Feb-27-30
1229	Final Affidavits (Final Inspections)	5	Feb-26-30	Mar-04-30
1230	Temporary Certificate of Occupancy (Final Inspections)	5	Feb-28-30	Mar-06-30
1231	Final Building Inspections & Documentation	8	Mar-07-30	Mar-18-30
1232	**Substantial Completion**	166	Oct-26-29	Jun-26-30
1233	Trainings & O&M's	90	Oct-26-29	Mar-11-30
1234	Finalize Cx Report & Certifications	90	Oct-26-29	Mar-11-30
1235	Prepare & Submit Punchlist	30	Jan-28-30	Mar-11-30
1236	Weather Allowance	68	Mar-19-30	Jun-21-30

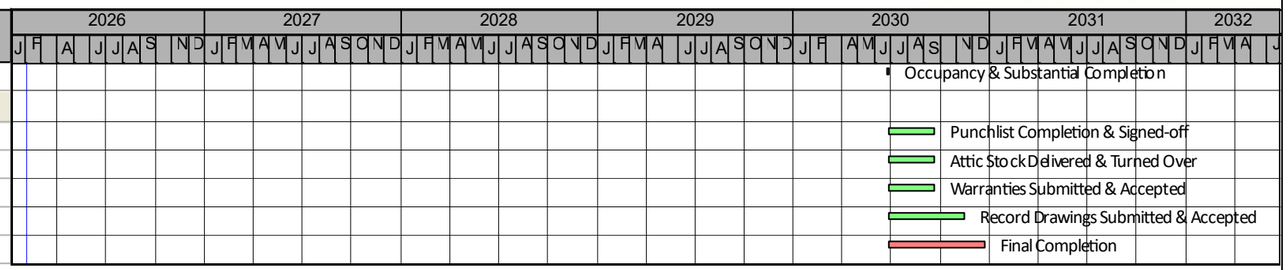


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Potrero Yard Modernization
Final Initial Schedule

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#	Activity Name	OD	Start	Finish
1237	Occupancy & Substantial Completion	3	Jun-24-30	Jun-26-30
1238	**Final Completion**	124	Jun-27-30	Dec-23-30
1239	Punchlist Completion & Signed-off	60	Jun-27-30	Sep-20-30
1240	Attic Stock Delivered & Turned Over	60	Jun-27-30	Sep-20-30
1241	Warranties Submitted & Accepted	60	Jun-27-30	Sep-20-30
1242	Record Drawings Submitted & Accepted	100	Jun-27-30	Nov-15-30
1243	Final Completion	180	Jun-27-30	Dec-23-30



February 2026

Open-Ended Performance Plan for SBE Compliance (OEPP)

Potrero Yard Modernization Project: Bus Infrastructure Facility



SUBMITTED BY:

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Executive Summary

The Potrero Yard Modernization Project ("Project") is an effort of the San Francisco Municipal Transportation Agency ("SFMTA") to redevelop its aging Potrero Yard facility by constructing a state-of-the-art bus facility. The Project is structured as a Public-Private Partnership ("P3"), with the Potrero Neighborhood Collective ("PNC") as the Lead Developer ("LD"). PNC is a consortium led by Plenary Americas US Holdings Inc. ("Plenary"), the sole equity member of the group.

The Project is divided into two segments – the Bus Yard Component ("BYC") and the Housing and Commercial Component (HCC). This document only relates to the BYC only. A separate inclusionary document will be developed for the Housing and Commercial Component by others.

This document (Open-Ended Performance Plan or "OEPP") describes the specific SBE goals for the BYC, details how the LD and the Design-Builder (Webcor Builders) plan to meet those goals, and documents how successful they are in executing this plan. The OEPP is intended to be a living document and will be updated quarterly.

SBE Goals and Current Performance

To comply with the Federal regulations (Code of Federal Regulations 49 CFR Part 26) and the SBE program established by the SFMTA, PNC developed an SBE Plan in conjunction with the SFMTA's Contract Compliance Office ("CCO"). The SBE Plan details the LD's commitments to SBE contracting as follows:

Project Portion	SBE Participation Goal (% of total cost)
Design & Professional Services	25%
Construction	20%

The current figures for SBE participation, as of February 18, 2026, are given below. Prior to execution of Prime Contract between LD and DB, SBE Participation values are $0/0%. Details of SBE commitments can be seen in Appendix B.

Project Portion	Current SBE Participation (% of total cost)
Design & Professional Services	0%
Construction	0%

Definitions

BYC:	Bus Yard Component, the portion of the Potrero Yard Modernization project that constructs a state-of-the-art operational and maintenance facility for the bus fleet of the San Francisco Municipal Transit Authority ("SFMTA").
CCO:	SFMTA's Contract Compliance Office, whose mission is to create a level playing field on which Small Business Enterprises (SBEs) can compete fairly for contracts and subcontracts.
Construction:	The Construction portion of the Project refers to all activities to physically build the BYC.
Design-Builder:	The Design-Builder is hired by the Lead Developer to finalize the design and carry out construction of the Project. The Design-Builder for the Project is Webcor Builders, CA License #1037217 A, B, C-8, C-9.
Design & Professional Services:	The Design & Professional Services portion of the Project refers to the non-construction activities necessary to carry out completion of the BYC. This includes various design, engineering, consulting, and professional services.
LD:	The Lead Developer is an organization responsible for managing all aspects of design, construction, and management for the Project. PNC is the Lead Developer for the Potrero Yard Modernization Project
Project:	The Project refers to the Potrero Yard Modernization Project.
PNC:	Potrero Neighborhood Collective, LLC ("PNC") is the Lead Developer for the Project. PNC is a consortium led by Plenary Americas US Holdings Inc., its sole equity member. It also includes affordable-housing developers, design firms, construction-management firms, and communications consultants.
P3:	A Public-Private Partnership ("P3") is a collaboration between government agencies and private companies to develop public projects. The Project is a P3 structure with PNC operating with funding coming from the City of San Francisco, the Federal government, and private sources.
SBE:	Small Business Enterprises are businesses whose revenues are below a certain threshold. For the Project, businesses are qualified as SBE's by the certification from California Department of General Services or by San Francisco Contract Monitoring Division.
SBE Plan:	The SBE Plan is a document negotiated by CCO and PNC to describe the LD's commitment to SBE contracting for the Project, as well as the standards, penalties, and procedures that govern that commitment.

SBE Plan

Background

In 2017, the SFMTA launched the Building Progress Program, a $1.2 billion multi-year effort, to repair, renovate, and modernize aging SFMTA facilities. Potrero Yard is the first site that the SFMTA will modernize and renovate under the Building Progress Program. PNC was selected as the Lead Developer under a P3 structure in which PNC will be responsible for design finalization, building, and financing of the Project over a 30-year term for the BYC.

The Potrero Yard Modernization Project is the first of its kind both nationally and for the City and County of San Francisco. The Project will construct a state-of-the-art bus facility that will serve as an operational and maintenance hub, and will enable the SFMTA to expand the bus fleet capacity at the yard by over 50%, which will improve efficiency for ground transportation citywide.

PNC and the Design-Builder are committed to maintaining a small-business supplier base throughout the entirety of the Project while also providing SFMTA optimal design, construction, and ongoing asset management. The SFMTA's goal is to create a level playing field on which SBEs can compete fairly for contracts and subcontracts relating to its construction, procurement and professional services activities in accordance with the federal regulations found within 49 CFR Part 26.

PNC worked with CCO to develop an SBE Plan document to specify the SBE goals for the BYC and lay out the regulations that govern those goals. This SBE Plan is intended to guide the buying decisions of the LD, BYC Design-Builder, and lower tier subcontractors and suppliers in support of SBE utilization.

SBE Goals

The SBE Plan developed by CCO and PNC specified the following SBE Goals for the BYC portion of the Project, differentiated by for design and professional services versus construction:

Portion	SBE Participation Goal (% of total cost)
Design & Professional Services	25%
Construction	20%

Figures for SBE Participation include all awards made to SBE contractors, subcontractors, consultants, subconsultants, vendors, or suppliers. Percentages are calculated as the cumulative total of SBE awards divided by the total cost of the project, including direct and indirect costs* for the Construction portion.

* See Appendix C for details of indirect costs that cannot be subcontracted.

SBE Qualification

To qualify as an SBE, a business must have one of the following:

- SBE certification from California Department of General Services (CADGS)
- LBE certification from San Francisco Contract Monitoring Division (SFCMD)
- Small Business Verification Form approved by SFMTA CCO

In addition, for businesses to qualify as an SBE, their total average gross revenue thresholds for the past five years must not exceed the small business size standard determined by the Small Business Administration for its relevant NAICS industry category (see Appendix A). In addition, the average annual gross receipts of the business (including its affiliates) over the previous three fiscal years must also be below $30.72 million.

SBE Set-Asides

As part of the SBE Plan, CCO and PNC agreed that certain scopes of work would be reserved for SBE (sub)contractors at certain minimum percentages. Details of the set-asides are given below, along with dollar-amount estimates based on work packages of the Design-Builder:

Construction Categories	Clarifications	Set-aside %	Set-aside $ (estimated)
Structural Concrete Contractor		10%	$9,297,127
Site Concrete within Sidewalks		10%	$148,685
Earthwork & Paving	Includes subbase and paving scopes. Excludes shoring, dewatering and mass excavation.	100%	$857,333
Drywall (Framing and Hanging)		30%	$918,428
Electrical		10%	$8,291,955
Drywall Insulation/Acoustical		100%	$1,533,008
Landscape	Trees, import soil and soil testing, irrigation. Does not include hardscape or site furnishings	100%	$360,566
Traffic Control	Includes principal pedestrian control of the walking public during construction and traffic control of trucks (Hauling Export& Import) entering & exiting the Site Traffic Control during Utility Tie-ins with Power, Water, Sewer, Joint Trench.	100%	TBD*
Trucking and Hauling	Includes off-haul of on-site soil only.	75%	$1,350,804
Construction Clean-up	Office cleaning and interior final clean.	100%	$500,000
		Total:	$23,257,906†

* The Traffic Control category does not map clearly to work packages of the Design-Builder, so no definite estimate can be given at this time

† Set-aside $ (estimated) total represents 6% of the direct budgeted cost and 4% of the total cost for the Construction portion of the Project

Implementation Plan

In alignment with the SBE goals identified above, the Design-Builder has established an implementation plan to promote the inclusion and participation of small businesses within the Project's supplier base. This plan represents a good faith effort to meet the goals developed by PNC and CCO. These efforts will be spearheaded by the Design-Builder SBE Liaison, Contigo Communications in partnership with IRML Consulting, as consultants to Webcor Builders.

The core elements of the good faith implementation plan overseen by the Design-Builder and Design-Builder's SBE Liaison are as follows:

- Publicizing contracting opportunities to SBEs via digital and print channels
- Partnering with local trade groups and small business organizations to publicize contracting opportunities
- Direct outreach to potential SBE contractor candidates as identified through searches of CADGS and SFCMD databases using NAISC codes as a filter
- Public workshops to publicize anticipated contracting opportunities for the Project among SBE contractor communities. These workshops will be held at least once annually
- Aiding with prequalification by confirming SBE certification
- Tracking SBE subcontracts to confirm inclusion of nondiscrimination/contracts assurance language is in all subcontract agreements
- Conducting and documenting good faith efforts for SBE participation in order to meet the SBE Goals
- Liaising with CCO
- Liaising with Lead Developer SBE Liaison to coordinate efforts, meet requirements, and document good faith efforts to meet SBE goals
- Updating, on a quarterly basis, the overall OEPP to indicate completed, present and forecasted work packages to be performed by SBEs.

Lead Developer SBE Liaisons

In addition to the Design-Builders SBE Liaison, the LD also has two SBE Liaisons whose role is to oversee adherence to the SBE Plan, maintain accountability, and promote transparency. PNC has identified Rosales Business Partners LLC and Yerba Buena Advisors LLC as the LD SBE Liaisons. The Design-Builder's SBE Liaisons (Contigo Communications and IRML Consulting) will support efforts of the LD SBE Liaisons as appropriate to foster a strong relationship with the local business community.

The LD SBE Liaison is responsible for the following:

- Conducting SBE outreach efforts to notify the SBE community of the Project, including holding a public workshop
- Monitoring SBE participation and performance of a Commercially Useful Function (CUF)
- Ensuring that SBEs have the correct SBE certification for work performed
- Reporting SBE participation to the City
- Confirming that all Design-Builder solicitation documents include information about SBE participation, including specific requirements to be responsive
- Supporting SBEs by implementing small business assistance training and educational activities
- Confirming good faith efforts for SBE participation conducted by Design-Builder
- Providing confirmation of the results of SBE responsiveness of bids/proposals to the CCO
- Receiving concerns from SBEs and guiding SBEs to address concerns with Design-Builder
- Confirming nondiscrimination in subcontracting
- Requiring clear selection procedures and criteria when the LD or Design-Builder hold competitive procurements, and certifying any competitive procurement selection process

Open-Ended Performance Plan (OEPP)

The OEPP is a quarterly-updated document that verifies the Design-Builder's commitment to meet SBE goals with details of anticipated subcontracting opportunities. It has been prepared by the Design-Builder's SBE Liaison with the cooperation of the Design-Builder and LD.

Assessment

To achieve the SBE goals laid out by the SBE Plan document, we began by breaking down the direct budgeted costs for the BYC (for which SBE subcontracting is possible) into work packages, each with a budget, timeframe for contracting, and timeframe for work completed. Although these work packages are sometimes distributed into more than one contract, they are discrete categories with a granularity workable for the purpose of this endeavor.

There were 41 such work packages for the Design & Professional Services portion of the Project, and 41 such packages for the Construction portion. For 29 of the work packages in the Design & Professional Services portion, contractors have already been identified or contracts have been awarded, with a SBE participation rate of 25% in those scopes.

None of the work packages for the Construction portion have been awarded to date; therefore, an educated assessment was made regarding the percentage of the direct cost budget for each package that could reasonably be expected to be allocated to SBEs. We first evaluated each work package to understand how each was likely a SBE was to be contracted (Tier 1 vs. Tier 2) and identified the relevant NAICS codes for each package (see Appendix A).

We relied on two methods for the assessment. First, we referred to past experience of the Design-Builder to understand the relevant contractor/supplier landscape for each work package. Second, we performed database searches on CADGS* and SFCMD†, sorted by the identified NAICS codes and/or work scope, to find potential SBEs appropriate to each work package. We combined the SBE search results with the experience-based assessment to come up with a reasonable prediction of what percentage of each work package budget would go to SBEs. Both approaches provided a starting point of how many SBEs were likely to bid for that package. We will continue to refine these predictions by conducting targeted outreach to SBEs found in our database searches as contract opportunities are advertised°.

* https://caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx

† https://sfcitypartner.sfgov.org/pages/LBESearch/supplier-search.aspx

° Prequalification is required to bid as a prime-tier contractor only. Subcontracting opportunities at Tier 2 and below do not require prequalification. Prequalification is open year-round to any businesses wishing to bid as a prime. There is no specific deadline to prequalify and prequalification sessions offering technical assistance will take place to assist SBE firms with the process.

Outreach

To achieve the desired SBE goals, Webcor Builders and its SBE Liaison have begun an outreach campaign to identify, contact, and contract with suitable SBE partners. This has included preparing outreach materials, assembling lists from SBE databases, and sorting those lists by suitable work packages. We held an SBE Interest meeting, launched an online SBE Bid Interest database through BuildingConnected, and held a SBE Matchmaker event to help connect SBEs with contracting opportunities and to help them get prequalified.

In addition, we plan to conduct outreach through the following channels:

- Hold a minimum of 1 annual outreach event in conjunction with LD Liaison
- Pre-bid meetings targeted by work packages
- Prequalification sessions with SBEs to inform and prepare them to meet the standards needed for contracts of this size
- Partnering with local labor and small business Community Benefit Organizations to amplify our message and reach SBEs who might not otherwise be reached
- Interest Meetings to address questions about Webcor procurement process
- Public bid advertisements in print & digital channels with 30-day advertising length
- Partnering with local Community Benefit Organizations to publicize contracting opportunities to SBEs
- Give 15-day advance notification to CCO before posting work package contracting opportunities
- Targeted phone-banking as needed to identify qualified SBEs
- Proactive communication to target SBEs about pre-qualification requirements and use of the BuildingConnected bid submission system
- Match-making for prime-tier contractors and lower-tier subcontractors
    - Create interested bidder lists based on outreach to small/local/disadvantaged businesses (organized by work package) to be utilized in the prime/sub match-making process
- Supplying non-SBE Prime Contractors with targeted lists of SBEs who are prequalified and appropriate for that work package

To document this outreach and verify good faith efforts, the SBE Liaison will document all outreach to and contact with SBE firms. These outreach logs will include a chart of work packages, firms contacted, SBE status, and why bid was/wasn't awarded to that firm, and record of all emails sent and received. These logs and related communications documents will be regularly submitted to CCO along with a narrative of good faith efforts.

Data Tables for SBE Goals

The following tables give detailed breakdowns of all direct cost work packages, using the table structure described in the SBE Plan document. Details of individual SBE contracts for the Project – including business name, certification type, contracting tier, and dollar figures – are given in Appendix B.

TABLE 1: 25% SBE Goal for the Design and Professional Services Portion

Anticipated SBE Work Activity / Scope of Work	Anticipated Timeframe for Subcontract Execution	Anticipated Timeframe of Work	Estimated Dollar Value for SBE Participation	Anticipated SBE %
Civil Engineering	Q2 2026	Q1 2026 - Q3 2030	$104,250	22%
Landscape	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Architectural	Q2 2026	Q1 2026 - Q3 2030	$6,250,000	25%
Structural Engineering	Q2 2026	Q1 2026 - Q3 2030	$700,070	25%
MEP Peer Review	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Fire Protection Peer Review	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Building Enclosure	Q2 2026	Q1 2026 - Q3 2030	$221,000	100%
Acoustics	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Sustainability	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Code (Fire Life Safety)	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Code (Accessibility)	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Specifications	Q2 2026	Q1 2026 - Q3 2030	$260,135	100%
Trash Management	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Façade Maintenance	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Elevator	Q2 2026	Q1 2026 - Q3 2030	$48,000	100%
Wind	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Door Hardware	Q2 2026	Q1 2026 - Q3 2030	$0	0%
Accessibility Design Peer Review Consulting	Q2 2026	Q1 2026 - Q3 2027	$24,200	100%
Building Enclosure Peer Review Consulting	Q2 2026	Q1 2026 - Q3 2027	$17,002	20%
Code and FLS Peer Reviews	Q2 2026	Q1 2026 - Q3 2027	$0	0%
Permitting Consulting	Q2 2026	Q1 2026 - Q3 2029	$105,000	50%
Cathodic Protection Engineering	Q2 2026	Q1 2026 - Q3 2027	$22,000	100%
SBE Liaison Consulting	Q2 2026	Q1 2026 - Q3 2030	$400,000	100%

TABLE 1: 25% SBE Goal for the Design and Professional Services Portion

Anticipated SBE Work Activity / Scope of Work	Anticipated Timeframe for Subcontract Execution	Anticipated Timeframe of Work	Estimated Dollar Value for SBE Participation	Anticipated SBE %
Certified Industrial Hygienist Consulting	Q2 2026	Q1 2026 - Q3 2027	$0	0%
Geotechnical Investigation Consulting	Q2 2026	Q1 2026 - Q3 2027	$340,372	25%
MMRP Consulting	Q2 2026	Q1 2026 - Q3 2030	$193,696	15%
Indoor Air Quality Testing Consulting	Q2 2026	Q1 2026 - Q3 2030	$9,000	20%
Commissioning	Q2 2026	Q1 2026 - Q3 2030	$143,980	57.5%
Special Inspection and Materials Testing Consulting	Q2 2026	Q1 2026 - Q3 2029	$404,000	25%
Shoring and Dewatering Engineering	Q2 2026	Q4 2026 - Q4 2027	$45,313	25%
Miscellaneous Metals, Railings and Catwalks - Design & Professional Services	Q1 2027	Q4 2026 - Q3 2029	$125,000	25%
Pre-engineered Metal Stair Engineering	Q1 2027	Q3 2026 - Q2 2029	$25,000	25%
Interior Cold Form Metal Framing Engineering	Q2 2026	Q3 2026 - Q1 2030	$12,500	25%
Curtain Wall System and Exterior Metal Panel Engineering	Q2 2026	Q3 2026 - Q3 2029	$113,750	25%
Signage & Environmental Graphics - Design & Professional Services	Q1 2027	Q2 2026 - Q1 2030	$75,000	25%
Vehicle Maintenance Systems and Equipment - Design & Professional Services	Q2 2026	Q3 2026 - Q1 2030	$114,329	25%
Elevators - Design & Professional Services	Q1 2027	Q3 2026 - Q2 2030	$50,000	25%
Fire Suppression Systems - Design & Professional Services	Q2 2026	Q2 2026 - Q2 2030	$8,750	25%
Plumbing Systems - Design & Professional Services	Q2 2026	Q2 2026 - Q2 2030	$122,197	25%
HVAC & Control Systems - Design & Professional Services	Q2 2026	Q2 2026 - Q2 2030	$150,000	25%
Electrical & Low Voltage Systems - Design & Professional Services	Q2 2026	Q2 2026 - Q2 2030	$574,102	25%
		Total:	$10,658,645	25%

The budget for the Construction portion contains direct costs (scopes which can be subcontracted) as well as indirect costs, for which SBE participation is not possible. For more information on indirect costs, see Appendix C.

The table below shows all direct cost work scopes for the Construction portion. Indirect costs are not listed as line items in this table. At the end of the table, anticipated SBE% figures are given proportional to the direct cost budget, the indirect cost budget, and the combined direct and indirect cost budget.

TABLE 2: 20% SBE Goal for the Construction Portion

Anticipated SBE Work Activity / Scope of Work	Anticipated Timeframe for Subcontract Execution	Anticipated Timeframe of Work	Estimated Dollar Value for SBE Participation	Anticipated SBE %
Demolition & Abatement	Q2 2026	Q4 2026 - Q3 2027	$1,006,250	20%
Shoring & Dewatering*	Q2 2026	Q1 - Q4 2027	$1,236,073	20%
Structural Concrete†	Q2 2026	Q3 2027 - Q2 2028	$11,156,552	12%
CMU (Unit Masonry)	Q1 2027	Q1 - Q3 2029	$1,921,795	25%
Misc. Metals and Railings and Gantries*	Q1 2027	Q1 - Q3 2029	$4,356,431	20%
Pre-engineered Metal Stairs*	Q1 2027	Q1 - Q2 2029	$299,897	20%
Carpentry Services	Q2 2026	Q3 2029 - Q1 2030	$1,616,270	12%
Interior & Exterior Framing, Drywall, Plaster*#	Q2 2026	Q1 2029 - Q1 2030	$2.451,436	25%
Below Grade Waterproofing	Q1 2027	Q3 2027 - Q1 2028	$655,542	20%
Above Grade Waterproofing, Roofing, Terrace Pavers	Q1 2027	Q3 2028 - Q3 2029	$411,303	20%
Smoke Curtains	Q2-Q3 2027	Q1 - Q2 2030	$9,900	5%
Curtain Wall Systems & Exterior Metal Panels*	Q2 2026	Q3 2028 - Q3 2029	$3,248,194	20%
Architectural Sheet Metal & Flashings	Q1 2027	Q3 2028 - Q2 2029	$260,417	20%
ACT & Specialty Ceilings	Q2-Q3 2027	Q2 - Q4 2029	$169,173	20%
Flooring & Polished Concrete	Q2-Q3 2027	Q2 - Q4 2029	$177,167	20%

† 10% set-aside for Structural Concrete Contractor
* Excluding engineering and design & professional services activity for this scope of work
# 100% set-aside for Drywall Insulation (16% of work package budget). 30% set-aside for Drywall Framing and Hanging (31% of work package budget)

TABLE 2: 20% SBE Goal for the Construction Portion

Anticipated SBE Work Activity / Scope of Work	Anticipated Timeframe for Subcontract Execution	Anticipated Timeframe of Work	Estimated Dollar Value for SBE Participation	Anticipated SBE %
Tiling	Q2-Q3 2027	Q2 - Q4 2029	$174,139	20%
Painting & Wall Covering; Caulking & Sealants	Q2-Q3 2027	Q2 2029 - Q1 2030	$824,205	20%
Signage/ Environmental Graphics*	Q1 2027	Q1 2029 - Q1 2030	$494,314	20%
Window Treatments	Q2-Q3 2027	Q3 2029 - Q1 2030	$33,800	20%
Parking Control Equipment	Q2-Q3 2027	Q3 2029 - Q1 2030	$0	0%
Operable Partitions	Q2-Q3 2027	Q4 2029 - Q1 2030	$29,034	20%
Vehicle Maintenance Systems & Equipment*	Q2 2026	Q2 2029 - Q1 2030	$19,340,969	75%
Appliances	Q2-Q3 2027	Q3 2029 - Q1 2030	$87,498	50%
Elevators*	Q1 2027	Q2 2029- Q2 2030	$22,705	1%
Fire Suppression*	Q2 2026	Q1 2029 - Q2 2030	$1,440,930	20%
Plumbing*	Q2 2026	Q1 2029 - Q2 2030	$3,770,927	20%
HVAC & Controls*	Q2 2026	Q1 2029 - Q2 2030	$3,961,405	20%
Electrical & Low Voltage*†	Q2 2026	Q1 2029 - Q2 2030	$9,950,346	12%
Trash Chutes & Compactors	Q1 2027	Q4 2029 - Q1 2030	$39,232	25%
Mass Excavation & Fill#	Q2 2026	Q1 - Q3 2027	$3,392,019	28%
Asphalt Paving$^{\Delta}$	Q2-Q3 2027	Q2 2029 - Q1 2030	$857,333	100%
Street Improvements$^{\bullet}$	Q2-Q3 2027	Q2 2029 - Q1 2030	$178,422	12%
Landscaping & Irrigation°; Fences	Q2-Q3 2027	Q2 2029 - Q1 2030	$513,353	100%
Wet Utilities	Q2 2026	Q4 2026 - Q1 2027	$395,996	20%
Dry Utilities	Q2 2026	Q3 - Q4 2029	$1,189,820	20%
Final Clean$^{\blacklozenge}$	Q3 2026	Q3 2026 - Q4 2030	$500,000	100%
Move-out Scope	Q2 2026	Q2 - Q3 2026	$0	0%

* Excluding engineering and design & professional services activity for this scope of work
† 10% set-aside for Electrical
# 75% set-aside for Trucking (15% of work package budget)
$^{\Delta}$ 100% set-aside for Paving
$^{\bullet}$ 10% set-aside for Construction within Sidewalks
° 100% set-aside for Landscaping (70% of work package budget)
$^{\blacklozenge}$ 100% set-aside for Construction Clean-up

TABLE 2: 20% SBE Goal for the Construction Portion

Anticipated SBE Work Activity / Scope of Work	Anticipated Timeframe for Subcontract Execution	Anticipated Timeframe of Work	Estimated Dollar Value for SBE Participation	Anticipated SBE %
General Requirements	Q3 2026 - Q4 2030	Q3 2026 - Q4 2030	$2,438,455	20%
New PG&E Service (allowance)	Q3 2027	Q2 2028 - Q2 2029	$2,475,540	17%
Outside OCS (allowance)	Q1 2028	Q1-Q4 2029	$1,462,000	17%
Inside OCS (allowance)	Q1 2027	Q1 2028 - Q4 2030	$2,142,000	17%
		Direct Costs Total:	$84,690,840	20%
		Indirect Costs* Total:	$30,126,381	20%t
		Direct + Indirect Costs Total:	$114,817,221	20%

* Indirect Costs are part of the Construction portion. DB will use Good Faith Efforts to maximize SBE participation in Indirect Cost line items, particularly Contingencies, in order to achieve the Construction SBE Goal. See Appendix C for more information.

Appendices

A. NAICS Codes

B. Predicted vs. Actual SBE Participation

Appendix A: NAICS Codes

The North American Industry Classification System (NAICS) is a Federal standard used to categorize business establishments. It is used by SBE databases (CUCP, CADGS, SFCMD) to sort certified businesses, and we use it to identify SBEs that are appropriate contracting candidates.

NAISC codes are given for all work packages in two tables, first from the Design & Professional Services portion, then from the Construction portion of the Project.

TABLE 1: NAICS Codes – Design & Professional Services

Scope of Work	NAICS Code - Description
Civil Engineering	541330 - Civil Engineering Services
Landscape	541320 - Landscape Architectural Services
Architectural	541310 - Architectural Services
Structural Engineering	541330 - Construction Engineering Services
MEP Peer Review	541330 - Engineering Consulting Services 541330 - Mechanical Engineering Services 541330 - Electrical Engineering Services
Fire Protection Peer Review	541690 - Other Scientific and Technical Consulting Services 541330 - Engineering Consulting Services
Building Enclosure	541690 - Building envelope Consulting Services 541330 - Engineering Consulting Services
Acoustics	541330 - Acoustical Engineering Consulting Services
Sustainability	541620 - Environmental Consulting Services 541330 - Engineering Consulting Services
Code (Fire Life Safety)	541690 - Safety Consulting Services 541350 - Building Inspection Services
Code (Accessibility)	541690 - Other Scientific and Technical Consulting Services 541350 - Building Inspection Services
Specifications	541350 - Building Inspection Services 541330 - Engineering Consulting Services
Trash Management	541690 - Other Scientific and Technical Consulting Services 541330 - Engineering Consulting Services
Façade Maintenance	541690 - Other Scientific and Technical Consulting Services 541330 - Engineering Consulting Services
Elevator	541330 - Engineering Services 236220 - Storage Elevator construction 541330 - Engineering Consulting Services

Appendix A: NAISC Codes – Design & Professional Services

Scope of Work	NAICS Code - Description
Wind	541330 - Engineering Services 541330 - Engineering Consulting Services
Door Hardware	332321 - Metal Window and Door Manufacturing 321911 - Wood Window and Door Manufacturing 541330 - Engineering Consulting Services
Accessibility Design Peer Review Consulting	541350 - Building Inspection Services 541330 - Engineering Consulting Services
Building Enclosure Peer Review Consulting	541690 - Building Envelope Consulting Services 541330 - Engineering Consulting Services
Code and FLS Peer Reviews	541350 - Building Inspection Services 541330 - Engineering Consulting Services
Permitting Consulting	541990 - Other Professional, Scientific, and Technical Services 541350 - Building Inspection Services
Cathodic Protection Engineering	541690 - Other Scientific and Technical Consulting Services 541330 - Engineering Consulting Services
SBE Liaison Consulting	541990 - Other Professional, Scientific, and Technical Services
Certified Industrial Hygienist Consulting	541690 - Safety Consulting Services 541330 - Engineering Consulting Services
Geotechnical Investigation Consulting	541360 - Geophysical Surveying and Mapping Services 541380 - Geotechnical Testing Laboratories 541330 - Engineering Consulting Services
MMRP Consulting	541620 - Environmental Consulting Services
Indoor Air Quality Testing Consulting	541620 - Environmental Consulting Services 541380 - Testing Laboratories and Services 541690 - Other Scientific and Technical Consulting Services
Commissioning	541350 - Building Inspection Services 541690 - Energy Consulting Services
Special Inspection and Materials Testing Consulting	541380 - Testing Laboratories and Services 541330 - Engineering Consulting Services
Shoring and Dewatering Engineering	541330 - Engineering Design Services
Miscellaneous Metals, Railings and Catwalks - Design & Professional Services	332323 - Ornamental and Architectural Metal Work Manufacturing 541330 - Engineering Design Services
Pre-engineered Metal Stair Engineering	332323 - Ornamental and Architectural Metal Work Manufacturing 541330 - Engineering Design Services
Interior Cold Form Metal Framing Engineering	332311 - Prefabricated Metal Building and Component Manufacturing 541330 - Engineering Design Services

Appendix A: NAISC Codes – Design & Professional Services

Scope of Work	NAICS Code - Description
Curtain Wall System and Exterior Metal Panel Engineering	332323 - Ornamental and Architectural Metal Work Manufacturing 332311 - Prefabricated Metal Building and Component Manufacturing 238150 - Glass and Glazing Contractors 541330 - Engineering Design Services
Signage & Environmental Graphics - Design & Professional Services	541430 - Graphic Design Services 339950 - Sign Manufacturing 541490 - Other Specialized Design Services
Vehicle Maintenance Systems and Equipment - Design & Professional Services	541420 - Industrial Design Services 541330 - Engineering Design Services
Elevators - Design & Professional Services	238290 - Other Building Equipment Contractors 541690 - Other Scientific and Technical Consulting Services
Fire Suppression Systems - Design & Professional Services	541690- Safety Consulting Services 541330 - Engineering Design Services
Plumbing Systems - Design & Professional Services	238220 - Plumbing, Heating, and Air-Conditioning Contractors 541420 - Industrial Design Services 541330 - Engineering Design Services
HVAC & Control Systems - Design & Professional Services	238220 - Plumbing, Heating, and Air-Conditioning Contractors 541330 - Engineering Services 541690 - Other Scientific and Technical Consulting Services
Electrical & Low Voltage Systems - Design & Professional Services	541330 - Electrical Engineering Services

TABLE 2: NAICS Codes – Construction

Scope of Work	NAICS Code - Description
Demolition & Abatement	238910 - Site Preparation Contractors 562910 - Site Remediation Services
Shoring & Dewatering	238990 - Shoring, Construction 238910 - Dewatering Contractors
Structural Concrete	238120 - Structural Steel and Precast Concrete Contractors 423320 Merchant/wholesaler of concrete products
CMU (Unit Masonry)	238140 - Masonry Contractors 423320 - Masonry, Stone, and Other Construction Materials Merchant Wholesalers
Misc. Metals and Railings and Gantries	332322 - Fabricated Metal Product Manufacturing 238190 - Other Foundation, Structure, and Building Exterior Contractors 423510 - Metal Service Centers and Other Metal Merchant Wholesalers
Pre-engineered Metal Stairs	332323 - Ornamental and Architectural Metal Work Manufacturing
Carpentry Services	238350 - Finish Carpentry Contractors 423310 - Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers
Interior & Exterior Framing, Drywall, Plaster	238130 - Framing Contractors 238310 - Drywall and Insulation Installation 423320 - Drywall and Drywall Supplies Merchant Wholesalers
Below Grade Waterproofing	238390 - Other Building Finishing Contractors
Above Grade Waterproofing, Roofing, Terrace Pavers	238160 - Roofing Contractors 238390 - Other Building Finishing Contractors 423330 - Roofing, Siding, and Insulation Material Merchant Wholesalers
Smoke Curtains	238290 - Other Building Equipment Contractors 423990 - Other Miscellaneous Durable Goods Merchant Wholesalers
Curtain Wall Systems & Exterior Metal Panels	238150 - Glass and Glazing Contractors 238190 - Other Foundation, Structure, and Building Exterior Contractors 423390 - Other Construction Material Merchant Wholesalers
Architectural Sheet Metal & Flashings	238170 - Siding Contractors 423330 - Roofing, Siding, and Insulation Merchant Wholesalers
ACT & Specialty Ceilings	238310 - Drywall and Insulation Contractors 423330 - Roofing, Siding, and Insulation Material Merchant Wholesalers
Flooring & Polished Concrete	238330 - Flooring Contractors 442210 - Floor Covering Stores
Tiling	238340 - Tile and Terrazzo Contractors 423320 - Brick, Stone, and Related Construction Material Merchant Wholesalers

Appendix A: NAISC Codes – Construction

Scope of Work	NAICS Code - Description
Painting & Wall Covering; Caulking & Sealants	238320 - Wall Covering Contractors 424950 - Paint, Varnish, and Supplies Merchant Wholesalers 238390 - Other Building Finishing Contractors 424690 - Other Chemical and Allied Products Merchant Wholesalers
Signage / Environmental Graphics	238990 - Other Specialty Trade Contractors 423990 - Other Merchant Wholesalers
Window Treatments	238390 - Other Building Finishing Contractors 442291 - Window Treatment Stores
Parking Control Equipment	238290 - Other Building Equipment Contractors 423850 - Service Establishment Equipment and Supplies Merchant Wholesalers
Operable Partitions	238390 - Other Building Finishing Contractors 423390 - Other Construction Material Merchant Wholesalers
Vehicle Maintenance Systems & Equipment	238290 - Other Building Equipment Contractors 423850 - Service Establishment Equipment and Supplies Merchant Wholesalers
Appliances	449210 - Electronics and Appliance Retailers 423620 - Household Appliances, Electric and Electronic Goods Merchant Wholesalers 238210 - Electrical Contractors
Elevators	238290 - Other Building Equipment Contractors 423830 - Industrial Machinery and Equipment Merchant Wholesalers
Fire Suppression	238220 - Plumbing, Heating, and Air-Conditioning Contractors 423850 - Service Establishment Equipment and Supplies Merchant Wholesalers
Plumbing	238220 - Plumbing, Heating, and Air-Conditioning Contractors 423720 - Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers
HVAC & Controls	238220 - Plumbing, Heating, and Air-Conditioning Contractors 423730 - Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers
Electrical & Low Voltage	238210 - Electrical Contractors and Other Wiring Installation Contractors 423610 - Electrical Apparatus and Equipment, Wiring Supplies
Trash Chutes & Compactors	238290 - Other Building Equipment Contractors 423930 - Recyclable Material Merchant Wholesalers
Mass Excavation & Fill	238910 - Site Preparation Contractors
Asphalt Paving	237310 - Highway, Street, and Bridge Construction
Street Improvements	238990 - Other Specialty Trade Contractors 423320 - Brick, Stone, and Related Construction Material Merchant Wholesalers

Appendix A: NAISC Codes – Construction

Scope of Work	NAICS Code - Description
Landscaping & Irrigation; Fences	238220 - Residential or Commercial Lawn Sprinkler Systems 561730 - Landscaping Services 44422 - Nursery, Garden Center, and Farm Supply Stores 238990 - Other Specialty Trade Contractors 444190 - Other Building Material Dealers
Dry Utilities	237110 - Water and Sewer Line Construction 423390 - Other Construction Material Merchant Wholesalers
Wet Utilities	237130 - Power and Communication Line and Related Structures Construction 423610 - Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers
Final Clean	561790 - Other Services to Buildings and Dwellings 561720 - Janitorial Services
Move-out Scope	238990 - All Other Specialty Trade Contractors
General Requirements	238990 - All Other Specialty Trade Contractors 532412 - Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing 561790 - Other Services to Buildings and Dwellings 561990 – Other Support Services
New PG&E Service	238210 - Electrical Contractors and Other Wiring Installation Contractors 237130 - Power and Communication Line and Related Structures Construction
Outside OCS	237130 - Power and Communication Line and Related Structures Construction 238210 - Electrical Contractors and Other Wiring Installation Contractors
Inside OCS	237130 - Power and Communication Line and Related Structures Construction 238210 - Electrical Contractors and Other Wiring Installation Contractors

Appendix B: Predicted vs. Actual SBE Participation

This appendix contains two tables (one for Design & Professional Services, one for Construction) showing all direct cost work scopes and detailing which SBE firms have received contracts and payments. The table details, for each work scope, the project status (budget, bidding, awarded, or complete), all SBE (sub)contractors, anticipated SBE participation, and to-date real SBE participation.

The status categories are defined as:

- **Budget** – developing the scope of work and budgetary requirements for the work package
- **Bidding** – budget and scope have been defined, seeking (sub)contractors
- **Awarded** – a (sub)contractor has been selected
- **Complete** – all work for the package has been completed

All SBEs with a contract commitment with the Project are listed along with their Certification (CA SBE, San Francisco LBE, or SFMTA CCO certification), the tier of their contract, the anticipated amount of their contract and its percentage of the work scope budget, and the to-date value of payments received. Prior to execution of Prime Contract between LD and DB, to-date SBE values are $0/0%.

These tables will be updated quarterly.

TABLE 1: Predicted vs. Actual SBE Participation – Design & Professional Services

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
Civil Engineering	Awarded	$423,000	Sage	LBE	3	$104,250	25%	$0	0%
Landscape	Awarded	$327,507	<no SBE participation anticipated>			$0	0%	$0	0%
Architectural	Awarded	$25,492,032	MarJang Architecture	LBE	2	$2,812,500	11%	$0	0%
			YA Studio	LBE	2	$3,437,500	13%	$0	0%
Structural Engineering	Awarded	$2,850,280	Bello & Associates	LBE	3	$350,035	12%	$0	0%
			FTF	SBE	3	$350,035	12%	$0	0%
MEP Peer Review	Awarded	$511,673	<no SBE participation anticipated>			$0	0%	$0	0%
Fire Protection Peer Review	Awarded	$69,974	<no SBE participation anticipated>			$0	0%	$0	0%
Building Enclosure	Awarded	$221,000	McGiness Chen	SBE	2	$221,000	100%	$0	0%
Acoustics	Awarded	$191,290	<no SBE participation anticipated>			$0	0%	$0	0%
Sustainability	Awarded	$474,850	<no SBE participation anticipated>			$0	0%	$0	0%
Code (Fire Life Safety)	Awarded	$177,692	<no SBE participation anticipated>			$0	0%	$0	0%

Appendix B Table 1: Predicted vs. Actual SBE Participation – Design & Professional Services

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
Code (Accessibility)	Awarded	$88,434	<no SBE participation anticipated>			$0	0%	$0	0%
Specifications	Awarded	$260,135	Emily Borland	LBE	2	$260,135	100%	$0	0%
Trash Management	Awarded	$24,200	<no SBE participation anticipated>			$0	0%	$0	0%
Façade Maintenance	Awarded	$67,170	<no SBE participation anticipated>			$0	0%	$0	0%
Elevator	Awarded	$48,000	EWGC	SBE	2	$48,000	100%	$0	0%
Wind	Budget	$51,500	<no SBE participation anticipated>			$0	0%	$0	0%
Door Hardware	Awarded	$42,020	<no SBE participation anticipated>			$0	0%	$0	0%
Accessibility Design Peer Review Consulting	Bidding	$24,200	Artful Environment, LLC	SBE	1	$24,200	100%	$0	0%
Building Enclosure Peer Review Consulting	Bidding	$85,008	TBD	TBD	1/2/3[v]	$17,002	20%	$0	0%
Code and FLS Peer Reviews	Bidding	$31,688	<no SBE participation anticipated>			$0	0%	$0	0%
Permitting Consulting	Bidding	$210,000	Bruce Baumann & Associates	LBE	1	$105,000	50%	$0	0%
Cathodic Protection Engineering	Bidding	$22,000	JDH Corrosion	SBE	1	$22,000	100%	$0	0%
SBE Liaison Consulting	Bidding	$400,000	Contigo Communications	LBE	1	$400,000	100%	$0	0%
Certified Industrial Hygienist Consulting	Bidding	$13,500	<no SBE participation anticipated>			$0	0%	$0	0%
Geotechnical Investigation Consulting	Bidding	$1,361,488	TBD	TBD	2/3[O]	$340,372	25%	$0	0%
MMRP Consulting	Bidding	$1,291,306	TBD	TBD	2/3[O]	$193,696	15%	$0	0%
Indoor Air Quality Testing Consulting	Bidding	$45,000	Indoor Environmental Engineering	LBE	1	$9,000	20%	$0	0%

[v] No contractors at any Tier have been identified for this scope

[O] A Tier 1 contractor has been selected, but that firm has not identified any Tier 2 or 3 subcontractors

Appendix B Table 1: Predicted vs. Actual SBE Participation – Design & Professional Services

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE		To-date SBE	
						$	%	$	%
Commissioning	Bidding	$250,400	TBD	TBD	2/3[O]	$143,980	58%	$0	0%
Special Inspection and Materials Testing Consulting	Bidding	$1,615,998	TBD	TBD	2/3[O]	$404,000	25%	$0	0%
Shoring and Dewatering Engineering	Bidding	$181,250	TBD	TBD	1/2/3[V]	$45,313	25%	$0	0%
Miscellaneous Metals, Railings and Catwalks - Design & Professional Services	Budget	$500,000	TBD	TBD	1/2/3[V]	$125,000	25%	$0	0%
Pre-engineered Metal Stair Engineering	Budget	$100,000	TBD	TBD	1/2/3[V]	$25,000	25%	$0	0%
Interior Cold Form Metal Framing Engineering	Bidding	$50,000	TBD	TBD	1/2/3[V]	$12,500	25%	$0	0%
Curtain Wall System and Exterior Metal Panel Engineering	Bidding	$455,000	TBD	TBD	1/2/3[V]	$113,750	25%	$0	0%
Signage & Environmental Graphics - Design & Professional Services	Budget	$300,000	TBD	TBD	1/2/3[V]	$75,000	25%	$0	0%
Vehicle Maintenance Systems and Equipment - Design & Professional Services	Bidding	$457,317	TBD	TBD	1/2/3[V]	$114,329	25%	$0	0%
Elevators - Design & Professional Services	Budget	$200,000	TBD	TBD	1/2/3[V]	$50,000	25%	$0	0%
Fire Suppression Systems - Design & Professional Services	Bidding	$35,000	TBD	TBD	1/2/3[V]	$8,750	25%	$0	0%
Plumbing Systems - Design & Professional Services	Bidding	$488,789	TBD	TBD	1/2/3[V]	$122,197	25%	$0	0%

[O] A Tier 1 contractor has been selected, but that firm has not identified any Tier 2 or 3 subcontractors
[V] No contractors at any Tier have been identified for this scope

Appendix B Table 1: Predicted vs. Actual SBE Participation – Design & Professional Services

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
HVAC & Control Systems - Design & Professional Services	Bidding	$600,000	TBD	TBD	1/2/3[v]	$150,000	25%	$0	0%
Electrical & Low Voltage Systems - Design & Professional Services	Bidding	$2,296,409	TBD	TBD	1/2/3[v]	$574,102	25%	$0	0%
	Totals:	$42,335,110	-			$10,658,645	25%	$0	0%

TABLE 2: Predicted vs. Actual SBE Participation – Construction

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
Demolition & Abatement	Bidding	$5,031,250	TBD	TBD	2/3[O]	$1,006,250	20%	$0	0%
Shoring & Dewatering*	Bidding	$6,180,365	TBD	TBD	2/3[O]	$1,236,073	20%	$0	0%
Structural Concrete†	Bidding	$92,971,268	TBD	TBD	2/3[O]	$11,156,552	12%	$0	0%
CMU (Unit Masonry)	Budget	$7,687,178	TBD	TBD	1/2/3[v]	$1,921,795	25%	$0	0%
Misc. Metals and Railings and Gantries*	Budget	$21,782,156	TBD	TBD	1/2/3[v]	$4,356,431	20%	$0	0%
Pre-engineered Metal Stairs*	Budget	$1,499,484	TBD	TBD	1/2/3[v]	$299,897	20%	$0	0%
Carpentry Services	Bidding	$13,468,914	TBD	TBD	2/3[O]	$1,616,270	12%	$0	0%
Interior & Exterior Framing, Drywall, Plaster*#	Bidding	$9,741,591	TBD	TBD	2/3[O]	$2,451,436	25%	$0	0%
Below Grade Waterproofing	Budget	$3,277,711	TBD	TBD	1/2/3[v]	$655,542	20%	$0	0%
Above Grade Waterproofing, Roofing, Terrace Pavers	Budget	$2,056,513	TBD	TBD	1/2/3[v]	$411,303	20%	$0	0%
Smoke Curtains	Budget	$198,000	TBD	TBD	1/2/3[v]	$9,900	5%	$0	0%
Curtain Wall Systems & Exterior Metal Panels*	Bidding	$16,240,968	TBD	TBD	2/3[O]	$3,248,194	20%	$0	0%
Architectural Sheet Metal & Flashings	Budget	$1,302,083	TBD	TBD	1/2/3[v]	$260,417	20%	$0	0%
ACT & Specialty Ceilings	Budget	$845,866	TBD	TBD	1/2/3[v]	$169,173	20%	$0	0%
Flooring & Polished Concrete	Budget	$885,833	TBD	TBD	1/2/3[v]	$177,167	20%	$0	0%

[O] A Tier 1 contractor has been selected, but that firm has not identified any Tier 2 or 3 subcontractors
* Excluding engineering and design & professional services activity for this scope of work
† 10% set-aside for Structural Concrete Contractor
[v] No contractors at any Tier have been identified for this scope
100% set-aside for Drywall Insulation/Acoustical (16% of work package budget). 30% set-aside for Drywall Framing and Hanging (31% of work package budget)

Appendix B Table 2: Predicted vs. Actual SBE Participation – Construction

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
Tiling	Budget	$870,696	TBD	TBD	1/2/3[v]	$174,139	20%	$0	0%
Painting & Wall Covering; Caulking & Sealants	Budget	$4,121,025	TBD	TBD	1/2/3[v]	$824,205	20%	$0	0%
Signage / Environmental Graphics*	Budget	$2,471,572	TBD	TBD	1/2/3[v]	$494,314	20%	$0	0%
Window Treatments	Budget	$169,000	TBD	TBD	1/2/3[v]	$33,800	20%	$0	0%
Parking Control Equipment	Budget	$200,000	<no SBE participation anticipated>			$0	0%	$0	0%
Operable Partitions	Budget	$145,168	TBD	TBD	1/2/3[v]	$29,034	20%	$0	0%
Vehicle Maintenance Systems & Equipment*	Bidding	$25,787,958	TBD	TBD	2/3[⊙]	$19,340,969	75%	$0	0%
Appliances	Budget	$174,995	TBD	TBD	1/2/3[v]	$87,498	50%	$0	0%
Elevators*	Budget	$2,270,480	TBD	TBD	1/2/3[v]	$22,705	1%	$0	0%
Fire Suppression*	Bidding	$7,204,650	TBD	TBD	2/3[⊙]	$1,440,930	20%	$0	0%
Plumbing*	Bidding	$18,854,636	TBD	TBD	2/3[⊙]	$3,770,927	20%	$0	0%
HVAC & Controls*	Bidding	$19,807,024	TBD	TBD	2/3[⊙]	$3,961,405	20%	$0	0%
Electrical & Low Voltage*†	Bidding	$82,919,552	TBD	TBD	2/3[⊙]	$9,950,346	12%	$0	0%
Trash Chutes & Compactors	Budget	$156,928	TBD	TBD	1/2/3[v]	$39,232	25%	$0	0%
Mass Excavation & Fill[#]	Bidding	$12,007,147	TBD	TBD	2/3[⊙]	$3,392,019	28%	$0	0%
Asphalt Paving[Δ]	Budget	$857,333	TBD	TBD	1/2/3[v]	$857,333	100%	$0	0%
Street Improvements[•]	Budget	$1,486,853	TBD	TBD	1/2/3[v]	$178,422	12%	$0	0%
Landscaping & Irrigation[°]; Fences	Budget	$513,353	TBD	TBD	1/2/3[v]	$513,353	100%	$0	0%
Wet Utilities	Bidding	$1,979,980	TBD	TBD	2/3[⊙]	$395,996	20%	$0	0%

[v] No contractors at any Tier have been identified for this scope
* Excluding engineering and design & professional services activity for this scope of work
[⊙] A Tier 1 contractor has been selected, but that firm has not identified any Tier 2 or 3 subcontractors
† 10% set-aside for Electrical
# 75% set-aside for Trucking (15% of work package budget)
[Δ] 100% set-aside for Paving
[•] 10% set-aside for Construction within Sidewalks
[°] 100% set-aside for Landscaping (70% of work package budget)

Appendix B Table 2: Predicted vs. Actual SBE Participation – Construction

Scope of Work	Status	Budget	SBE/LBE Firm	Certification	Contract Tier	Anticipated SBE $	Anticipated SBE %	To-date SBE $	To-date SBE %
Dry Utilities	Bidding	$5,949,100	TBD	TBD	2/3[O]	$1,189,820	20%	$0	0%
Final Clean[♦]	Budget	$500,000	TBD	TBD	1/2/3[V]	$500,000	100%	$0	0%
Move-out Scope	Bidding	$411,429	<no SBE participation anticipated>			$0	0%	$0	0%
General Requirements	Budget	$12,192,275	TBD	TBD	1/2/3[V]	$2,438,455	20%	$0	0%
New PG&E Service	Budget	$14,562,000	TBD	TBD	1/2/3[V]	$2,475,540	17%	$0	0%
Outside OCS	Budget	$8,600,000	TBD	TBD	1/2/3[V]	$1,462,000	17%	$0	0%
Inside OCS	Budget	$12,600,000	TBD	TBD	1/2/3[V]	$2,142,000	17%	$0	0%
Direct Cost Totals:		$419,982,334	-			$84,690,840	20%	$0	0%
Indirect Cost* Totals:		$154,103,771	-			$30,126,381	20%	$0	0%
Direct + Indirect Cost Totals:		$574,086,105	-			$114,817,221	20%	$0	0%

[O] A Tier 1 contractor has been selected, but that firm has not identified any Tier 2 or 3 subcontractors

[♦] 100% set-aside for Construction Clean-up

[V] No contractors at any Tier have been identified for this scope

* Indirect Costs are part of the Construction portion. DB will use Good Faith Efforts to maximize SBE participation in Indirect Cost line items, particularly Contingencies, in order to achieve the Construction SBE Goal. See Appendix C for more information.

Appendix C: Indirect Costs

We separate indirect costs for the Project from direct costs because indirect costs are payments for services which cannot be subcontracted or are inherently unknown at this time. All indirect costs are attributed to the Construction portion of the Project. The table below gives details about these costs including budget, payee, and SBE opportunity.

Indirect costs cannot be subcontracted for one of several reasons:

- They are for products that cannot be obtained from SBEs (insurance, bonds & guarantees)
- They are paid directly to a government authority (taxes and fees)
- They are paid directly to the Design-Builder as operational costs (DB fee and General Conditions)
- The costs are unknown, designated for unanticipated services or products (Contingencies)

The DB had previously identified several subcontracting opportunities to support indirect costs and included them within a direct cost budget. For example, subcontracting of a permit facilitator for AHJ Fees is within the Design & Professional Services budget, and General Requirements is found within the Construction budget.

In order to achieve an overall 20% SBE Participation goal for the Construction portion, the DB will use Good Faith Efforts to maximize SBE opportunities within Indirect Cost line items. This will be focused on Contingencies costs that can be directed towards subcontractors, identified below in Table 1.

Table 1 – Indirect Cost SBE Opportunity

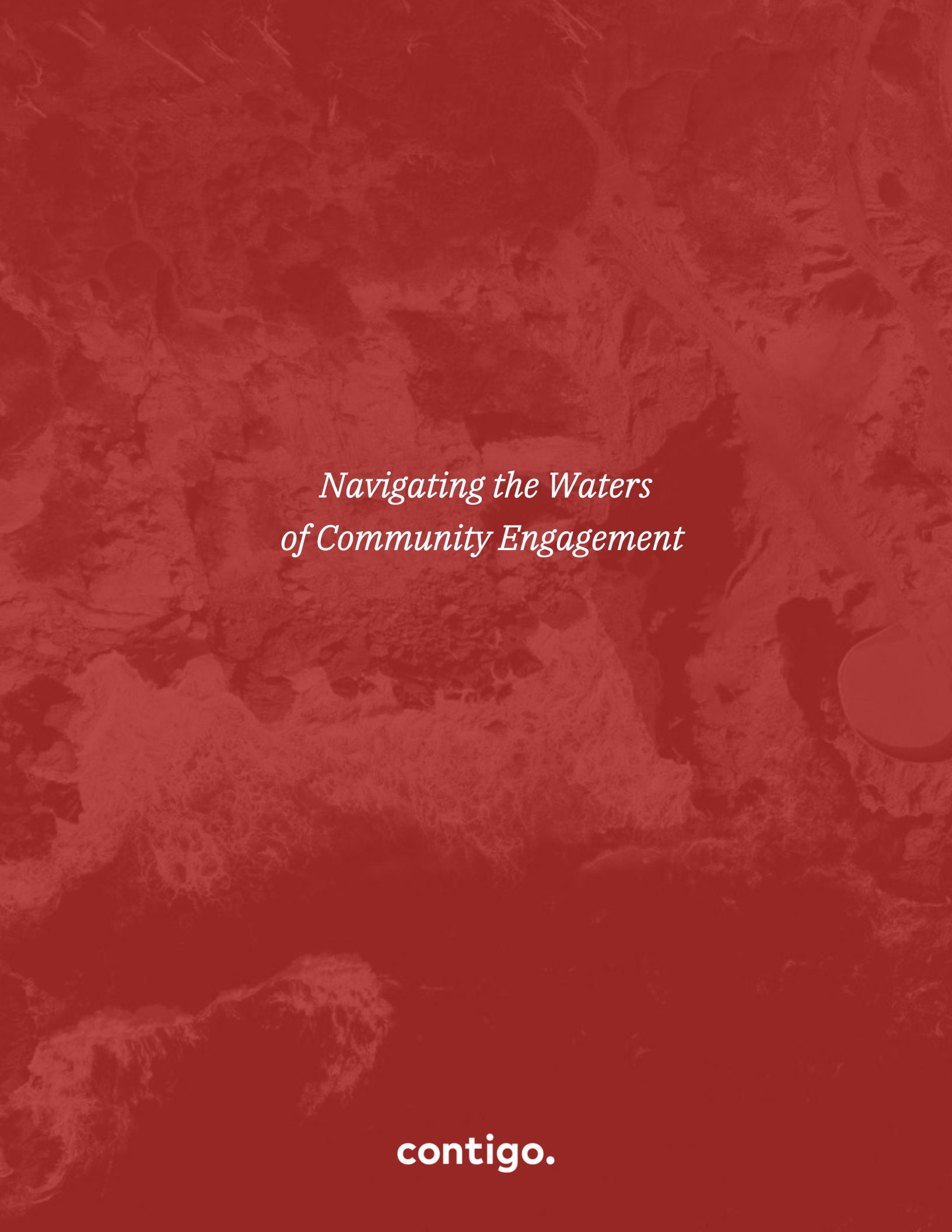
Indirect Cost Description	Payee	Budget	SBE Opportunity		Clarifications
			$	%	
Insurance, Bonds & Guarantees	Paramount Insurance, The Hartford	$27,899,905	$0	0%	No SBEs offer insurance, bonds or guarantees at the magnitude required
Taxes	City of San Francisco	$1,912,917	$0	0%	Taxes are paid directly to government authorities, not businesses
Authority Having Jurisdiction (AHJ) Fees	Bay Area Air Quality Mgmt. District, San Francisco Dept. of Building Inspection, Other Regulatory Bodies	$4,676,896	$0	0%	AHJ Fees are paid to government authorities who are able to issue permits, inspections, reviews, and fees.
Design-Builder's Fee	Webcor	$33,938,850	$0	0%	Paid directly to Webcor

Appendix C: Indirect Costs

Indirect Cost Description	Payee	Budget	SBE Opportunity		Clarifications
			$	%	
General Conditions*	Webcor	$48,161,525	$0	0%	Management, staffing and operational costs paid directly to Webcor
Contingencies	Webcor	$37,513,678	$30,126,381†	80%†	Contingencies are moneys held in reserve by the DB to pay for unforeseen, non-reimbursable, or self-inflicted costs.
	Totals:	$154,103,771	$30,126,381	20%	

* Excluding subcontractable GCGR scopes: see General Requirements line item in Table 2: 20% Goal for Construction portion on p. 13

† Contingency monies could be directed towards subcontractors, depending on the nature and details of the unforeseen circumstances requiring redress. DB will use Good Faith Efforts to achieve the SBE Goal for Contingencies, maximizing SBE participation for these costs as they arise.


Navigating the Waters
of Community Engagement
contigo.

BIDDER (PRIME): _____ **TO BE SUBMITTED PER INSTRUCTIONS**

SFMTA SBE FORM No. 2

SBE PARTICIPATION
OPEN-ENDED PERFORMANCE PLAN – STATEMENT OF COMMITMENT

This form must be completed and submitted along with the OEPP. By affixing my signature below, I agree to the following and I acknowledge that I have read and will comply with the SBE Program under SFMTA's DBE Program Plan, SFMTA's SBE CCO Inserts for Professional and Technical Services, and for Construction for this Project.

I have submitted a complete OEPP, which includes:

1. *The two separate tables described in the instructions with the following details:*
    - *Anticipated Work Type*
    - *Anticipated Timeframe of that Work*
    - *Anticipated Time frame in which actual subcontracts would be executed*
    - *Anticipated Dollar Value & Percentage of the Work Opportunities*
    - *Adds up to the Dollar Value & Percentage of the specific SBE Goal*
2. *Narrative detailing how the OEPP was formulated and how it will be successfully implemented with respect to all SBE Goals*
3. *Statement of Commitment (this signed SFMTA SBE Form No. 2)*

I agree to commit to using Good Faith Efforts to meet the following SBE Goals throughout the life of the Bus Yard Infrastructure Facility Project phase:

Design and Professional Services Goal:

- SBE: 25%

Construction Goal:

- SBE: 20%

All contracting dollars must be allocated into either the design and professional services phase or the construction phase (e.g., Prime must determine which phase it will place programming services into, etc.).

To allow for adequate time to bid out all **Design and Professional Services** scopes of work, within sixty (60) days of financial close, I shall identify all SBE subconsultants, vendors, and lower tier subconsultants that I will rely on to meet the SBE Goals. New subconsultants may be added at this time; however, no SBEs listed at time of proposal submission can be substituted, removed from the Contract or have its Contract, purchase order or other form of agreement reduced without LD/SFMTA CCO's prior approval. SBE agreements may be modified to increase contract amount without LD/SFMTA CCO's prior approval.

To allow for adequate time to bid out all **Construction** scopes of work, within ninety (90) days of financial close, I will identify all SBE subcontractors, vendors, and lower tier subcontractors that I will rely on to meet the SBE Goal(s). New subcontractors may be added; however, no SBEs listed at time of proposal submission can be substituted, removed from the Contract or have its Contract, purchase order or other form of agreement reduced without LD/SFMTA CCO prior approval. SBE agreements may be modified to increase contract amount without LD/SFMTA CCO prior approval.

If awarded the project, as part of my firm's Good Faith Efforts, I will:

- Update as required, the overall SBE OEPP to indicate completed, present and forecasted scopes of work to be performed by SBEs. These updates will identify changes that impact SBE participation or confirm the overall OEPP remains the same because there are no changes that would impact SBE participation.
- Obtain SFMTA CCO approval for all changes to the OEPP.

	2/9/2026
Signature	**Date**
Webcor Builders	Erik Biczkow, Project Director
Name of Firm (print)	**Name and Title (print)**
207 King Street, Suite 300, San Francisco, CA 94107	
Address	
510-205-5603	ebiczkow@webcor.com
Phone Number	**Email**

END OF FORM No. 2

WEBCOR
207 King Street, Suite 300, San Francisco, CA 94107
T 415.978.1000 | webcor.com

February 19, 2026

Chris Jauregui
Plenary Americas
633 W. Fifth Street
Suite 4975
Los Angeles, CA 90071

RE: Statement of Implementation
Project: Potrero Bus Yard Modernization

Dear Chris,

Per the request of San Francisco MTA:

- Glass Façade along 17th Street - Webcor can confirm that the glass façade along 17th Street, located between gridlines C and G, will be implemented into the project.
- PDA Design Comment Logs - The "100% SD Design Comments" log, "Final VE Log Comments," and "feedback received from SFMTA operators after reviewing the VE changes" were not provided within the bid documents for this effort. Pricing based specifically on the documents noted in the Basis of Estimate provided by Webcor as part of our Fixed Final Price. Webcor cannot commit to implementing any comments found within these logs but will commit to reviewing the comments and holding further discussions. Note that future implementation of any existing comments may come with additional cost or schedule impacts if they exceed requirements found within Exhibit 18.
- Public Restroom on 17th Street and Hampshire Street – Webcor can confirm that a public restroom located at the corner of 17th Street and Hampshire Street will be implemented.

Please don't hesitate to reach out should you have any questions regarding the above statements.

Sincerely,



Thomas R. Taylor
Sr. Vice President
Webcor Builders

EXHIBIT 4

PAYMENT MECHANISM

1 DEFINITIONS

Unless otherwise specified, capitalized terms used in this Exhibit 4 (Payment Mechanism) have the meanings given in Exhibit 1 (Abbreviations and Definitions) to the Agreement.

EXHIBIT 4A

MILESTONE PAYMENT MECHANISM

1. MILESTONE PAYMENT 1

1.1 Subject to the terms and conditions of this Section 1 (Milestone Payment 1) and the Contract Documents, Non-Profit Entity shall be entitled to receive a single payment on or after Financial Close from the City in the amount of $65,000,000 as partial compensation for Non-Profit Entity's performance of the D&C Work ("Milestone Payment 1").

1.2 For Milestone Payment 1, Non-Profit Entity shall submit an invoice no later than ten Business Days prior to the anticipated Financial Close Date. City will pay Non-Profit Entity Milestone Payment 1 no later than three Business Days following the Financial Close Date. Under no circumstances shall City be obligated to make the Milestone Payment 1 prior to the Financial Close Date.

2. MILESTONE PAYMENT 2

2.1 Subject to the terms and conditions of this Section 2 (Milestone Payment 2) and the Contract Documents, Non-Profit Entity shall be entitled to receive a milestone payment from the City in the maximum amount of $250,000,000 as partial compensation for Non-Profit Entity's performance of the D&C Work. The City shall pay Milestone Payment 2A (as defined below) upon the Substantial Completion Deadline, and in the case of Milestone Payment 2B (as defined below), upon reaching Substantial Completion, each in accordance with this Section 2. The components described in this Section 2.1 are referred to collectively as "Milestone Payment 2".

2.2 Milestone Payment 2 shall consist of two components: A maximum amount of $50,000,000 calculated in accordance with Section 2.4 of this Exhibit and payable upon the Substantial Completion Deadline ("Milestone Payment 2A") and a maximum amount of $200,000,000 as calculated in accordance with Section 2.5 of this Exhibit and payable upon the achievement of Substantial Completion ("Milestone Payment 2B").

2.3 Non-Profit Entity shall submit an invoice to the City for Milestone Payment 2A no later than the 10th day of the month immediately following the Substantial Completion Deadline and in accordance with the requirements of Section 11.4 (Invoice, Other Amounts and Payments) of the Agreement. For clarity, Non-Profit Entity shall be entitled to submit an invoice immediately following the Substantial Completion Deadline.

2.4 Milestone Payment 2A shall be calculated using the following formula:

MP2A = MMP – D

Where:

MP2A = Milestone Payment 2;

MMP = the amount $50,000,000;

D = D&C Deductions incurred for the period commencing on the Effective Date and ending on the Substantial Completion Deadline as set out in Section 4 (D&C Period Deductions) of Exhibit 4A (Milestone Payment Mechanism).

2.5 Milestone Payment 2B shall be calculated using the following formula:

MP2B = MMP – D

Where:

MP2B = Milestone Payment 2;

MMP = the amount $200,000,000;

D = D&C Deductions incurred for the period commencing on the Effective Date and ending on the Substantial Completion Date (to the extent not already deducted from Milestone Payment 2A) as set out in Section 4 (D&C Period Deductions) of Exhibit 4A (Milestone Payment Mechanism).

2.6 Non-Profit Entity shall submit an invoice for Milestone Payment 2B no later than the 10th day of the month immediately following issuance of a Certificate of Substantial Completion in accordance with the process in Section 11.4 (Invoice, Other Amounts and Payments) of the Agreement. For clarity, Non-Profit Entity shall be entitled to submit an invoice immediately following issuance of a Certificate of Substantial Completion.

2.7 The City will pay Non-Profit Entity Milestone Payment 2 in accordance with the process in Section 11.4 (Invoice, Other Amounts and Payments) of the Agreement.

2A. Substantial Completion Development Fee

2A.1 Subject to the terms and conditions of this Section 2A (Substantial Completion Development Fee) and the Contract Documents, Non-Profit Entity shall be entitled to receive four payments on or after the Substantial Completion Date from the City in the amount of $5,000,000 as compensation for Non-Profit Entity's involvement in the development of the D&C Work (collectively the "**Substantial Completion Development Fee**").

2A.2 Subject to the terms and conditions of this Section 2A (Substantial Completion Development Fee) and the Contract Documents, including this Exhibit 4A, Non-Profit Entity

shall be entitled to receive the following portions of the Substantial Completion Development Fee upon satisfaction of the following applicable conditions:

(a) Non-Profit Entity shall be entitled to $4,000,000 of the Substantial Completion Development Fee upon achievement of Substantial Completion;

(b) Non-Profit Entity shall be entitled to $500,000 of the Substantial Completion Development Fee upon achievement of Final Acceptance;

(c) Non-Profit Entity shall be entitled to $250,000 of the Substantial Completion Development Fee upon completion of all Commissioning requirements following Final Acceptance as described in Section 6.7.4. (Post Substantial Completion Requirements) of Division 6 of the Technical Requirements; and

(d) Non-Profit Entity shall be entitled to $250,000 of the Substantial Completion Development Fee upon the expiry of the Warranty Period.

2A.2 For each portion of the Substantial Completion Development Fee, upon the satisfaction of the applicable condition(s) above, Non-Profit Entity shall submit an invoice in accordance with the process in Section 11.4 (Invoice, Other Amounts and Payments). City will pay Non-Profit Entity the applicable portion of the Substantial Completion Development Fee no later than three Business Days following a properly submitted invoice. Under no circumstances shall City be obligated to make any portion of the Substantial Completion Development Fee payment prior to the Substantial Completion Date.

3. D&C PERIOD DEDUCTIONS

3.1. Subject to the provisions of this Agreement, if at any time prior to the Substantial Completion Date, a D&C Failure Event occurs, the City may make a Deduction from Milestone Payment 2 in respect of that D&C Failure Event.

3.2. Non-Profit Entity shall submit to City, 30 days before the Substantial Completion Deadline (for the purposes of assessing D&C Deductions against Milestone Payment 2A), and if Substantial Completion is anticipated to occur following the Substantial Completion Deadline (for the purposes of assessing D&C Deductions against Milestone Payment 2B), again 30 days before the anticipated date of Substantial Completion, a report providing a preliminary summary of all D&C Noncompliance Points and D&C Period Deductions calculated as of 30 days prior to the anticipated Substantial Completion Deadline and, if applicable, the Substantial Completion Date. Within 30 days following the Substantial Completion Deadline and, if applicable, the Substantial Completion Date, Non-Profit Entity shall submit to City a final summary of all D&C Period Noncompliance Points and D&C Period Deductions calculated as of the Substantial Completion Deadline and, if applicable, the Substantial Completion Date.

3.3. Prior to the Substantial Completion Date, Non-Profit Entity will accrue D&C Period Noncompliance Points for every D&C Failure Event in accordance with this Section 2, Section 15.4 of the Agreement and as set forth in Appendix A (D&C Noncompliance Points and Deductions) in this Exhibit 4A (Milestone Payment Mechanism). For the avoidance of doubt, no D&C Period Noncompliance Points will accrue for D&C Failure Events that occur after the Substantial Completion Date.

3.4. Non-Profit Entity will include in its Performance Monitoring Report a summary of all D&C Period Noncompliance Points accrued in the month and cumulative number of points accrued up to the month being reported from the Effective Date.

APPENDIX A

D&C PERIOD NONCOMPLIANCE POINTS AND DEDUCTIONS

Table A1 – D&C Failure Event Table

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1	**Division 01 - General**							
1.1	Project Management	Project Management Plan	Prepare, submit and update Project Management Plan in accordance with the Contract Documents	5 days	5 per D&C Failure Event	-	2 days	Technical Requirements, Division 01, Section 1.1.1
1.2	Project Management	Initiation Meetings	Conduct Initiation Meetings and submit meeting agendas and minutes in accordance with the Contract Documents	1 day	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 01, Section 1.1.3.1-3
1.3	Project Management	Weekly Project Coordination Meetings	Conduct Weekly Project Coordination Meetings in accordance with the Contract Documents	1 day	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 01, Section 1.1.3.4
1.4	Project Management	Monthly Progress Meetings	Conduct Monthly Progress Meetings and submission of meeting agenda and minutes in accordance with the Contract Documents	1 day	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 01, Section 1.1.3.5
1.5	Project Management	Ongoing Coordination Meeting	Conduct Ongoing Coordination Meetings and submission of meeting agenda and minutes in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.1.3.6

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.6	Project Management	Special Meetings	Conduct Special Meetings and submission of meeting agenda and minutes in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.1.3.7
1.7	Project Management	Key Personnel	Prepare, submit and update a Key Personnel Register in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.1.4
1.8	Project Management	Key Personnel	Prepare, submit and update resumes for any proposed replacement of Key Personnel in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.1.4
1.9	Intentionally Omitted							
1.10	Project Management	Regulatory Approvals Plan	Prepare, submit and update a Regulatory Approvals Plan in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.1.6
1.11	Project Management	Design and Construction Management Plans	Prepare, submit and update a complete Design Management Plan to achieve the requirements of Design Management in accordance with the Contract Documents	5 days	5 per D&C Failure Event	-	2 days	Technical Requirements, Division 01, Section 1.1.7.1

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.12	Project Management	Design and Construction Management Plans	Prepare, submit and update a complete Construction Management Plan to achieve the requirements of Construction Management in accordance with the Contract Documents	5 days	5 per D&C Failure Event	-	2 days	Technical Requirements, Division 01, Section 1.1.7.2
1.14	Project Controls and Performance Management	Project Schedule	Prepare, submit and update Baseline Project Schedule in accordance with the Contract Documents	3 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 01, Section 1.2.1.3 and Section 1.2.1.2
1.15	Project Controls and Performance Management	Project Schedule	Prepare, submit and update Revised Project Schedule in accordance with the Contract Documents	3 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 01, Section 1.2.1.4 and Section 1.2.1.2
1.16	Project Controls and Performance Management	Project Schedule	Prepare, submit and update Recovery Schedule in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 01, Section 1.2.1.5 and Section 1.2.2
1.17	Project Controls and Performance Management	Project Schedules	Prepare, submit and update complete Project Schedule Monthly Updates in accordance with the Contract Documents	2 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 01, Section 1.2.1.6 and Section 1.2.2
1.18	Project Controls and Performance Management	Project Schedules	Prepare, submit and update complete preliminary and final Submittal Schedule for D&C Submittals in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	2 days	Technical Requirements, Division 01, Section 1.2.1.7 and Section 1.2.2

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.19	Project Controls and Performance Management	Project Schedules	Prepare, submit and update complete Look-Ahead Activity Reports in accordance with the Contract Documents	1 day	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.2.1.8 and Section 1.2.2
1.20	Project Controls and Performance Management	Schedule System	Comply with requirements of the Scheduling System	5 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.2.3
1.21	Project Controls and Performance Management	Performance Reporting	Prepare, submit and update Monthly Progress Status Report in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.2.4.1
1.22	Project Controls and Performance Management	As-Built Schedules	Prepare, submit and update complete As-Built Schedule and Final Schedule Report in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.2.5
1.23	Project Controls and Performance Management	Time Impact Analysis for Proposed Extensions of Time	Prepare, submit and update Time Impact Analysis for proposed extensions of time in accordance with the Contract Documents	2 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 01, Section 1.2.6
1.24	Submittal Management	Submittal Management	Prepare, submit and update Initial List of Submittals in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.25	Submittal Management	Submittal Management	Meet requirements and standards of each Submittal provided to the City and other entities in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.3
1.26	Quality Management	Principal Project Company Quality Program	Prepare, submit and update complete Initial PPC Quality Program in accordance with the Contract Documents	5 days	5 per D&C Failure Event	-	3 days	Technical Requirements, Division 01, Section 1.4.1
1.27	Quality Management	Principal Project Company Quality Program	Prepare, submit and update complete subsequent updates to PPC Quality Program in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.4.1
1.28	Quality Management	Principal Project Company Quality Program	Establish Quality Management System and submit necessary documentation to the City	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.4.1.2
1.29	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Design Control Procedures in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.3
1.30	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Product Identification and Traceability Procedures in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.4

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.31	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Process Control Procedures in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.5
1.32	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Inspection and Testing Procedures in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.6-8
1.33	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Control of Nonconforming Work Procedures in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.4.1.9
1.34	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Nonconforming Work Report in accordance with the Contract Documents	24 hours	1 per D&C Failure Event	$50	24 hours	Technical Requirements, Division 01, Section 1.4.1.9
1.35	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Corrective and Preventive Action Procedures in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.4.1.10
1.36	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Control of Quality Records Procedures in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.11

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.37	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Quality Audit Procedures in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.12
1.38	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Quality Audit Reports in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.4.1.12
1.39	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Training Procedures in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.4.1.13
1.40	Quality Management	Principal Project Company Quality Program	Prepare, submit and update Training Records and Certifications in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.4.1.13
1.41	Quality Management	Principal Project Company Design Quality	Prepare, submit and update updates to Principal Project Company Design Quality Plan in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.4.2
1.42	Quality Management	Principal Project Company Design Quality	Prepare, submit and update Monthly PDQP Report in accordance with the Contract Documents	1 day	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.4.2.1.A
1.43	Quality Management	Principal Project Company Design Quality	Prepare, submit and update the Design Progress Tracking Report in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	2 days	Technical Requirements, Division 01, Section 1.4.2.1.B

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.44	Quality Management	Principal Project Company Design Quality	Prepare, submit and update Quantity Estimates in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	2 days	Technical Requirements, Division 01, Section 1.4.2.1.C
1.45	Quality Management	Principal Project Company Design Quality	Prepare, submit and update Log of Nonconforming Design Work Reports in accordance with the Contract Documents	1 day	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.4.2.2.B
1.47	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update Principal Project Company Construction Quality Plan (PCQP) in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.4.3
1.48	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update Candidate Independent Testing Laboratory Credentials in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.4.3.1
1.49	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update ITL Portable and Satellite Policies and Procedures in accordance with the Contract Documents	2 days	3 per D&C Failure Event	$150	0.5 day	Technical Requirements, Division 01, Section 1.4.3.1
1.50	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update Material and Equipment Conformance Certifications in accordance with the Contract Documents	2 days	1 per D&C Failure Event	$50	0.5 day	Technical Requirements, Division 01, Section 1.4.3.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.51	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update Source of Supply Compliance Certifications in accordance with the Contract Documents	2 days	1 per D&C Failure Event	$50	0.5 day	Technical Requirements, Division 01, Section 1.4.3.3
1.52	Quality Management	Principal Project Company Construction Quality	Prepare, submit and update Construction Quality Work Procedures in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements, Division 01, Section 1.4.3.4
1.53	Quality Management	Principal Project Company Construction Quality	Conduct Quality Check Points in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$50	1 day	Technical Requirements Division 01, Section 1.4.3.4.B
1.54	Information Management	Information Management	Prepare, submit and update Information Management Plan (IMP) in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.6
1.55	Information Management	Document Management Software	Prepare, submit and update the Document Management Software in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.6.1
1.56	Information Management	Document Management Software	Conduct instruction session on use of DMS in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements Division 01, Section 1.6.1.F
1.57	Information Management	Drawing and Engineering Data Changes	Prepare, submit and update design change workflow processes in	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements Division 01, Section 1.6.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with the Contract Documents					
1.58	Information Management	As-Built Documents	Prepare, submit and update complete As-Built Documents for individual items in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.6.4
1.59	Information Management	As-Built Documents	Prepare, submit and update complete aggregated As-Built Documentation prior to Final Acceptance in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.6.4
1.60	Training	Training	Prepare, submit and update Training Procedures in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.7
1.61	Design Management	Design Document Organization	Submit and update design certifications by responsible AOR(s) in accordance with the Contract documents.	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements Division 01, Section 1.8.3
1.62	Design Management	Design Exceptions and Waivers	Prepare, submit and update Deviation requests in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements Division 01, Section 1.8.4
1.63	Design Management	Proprietary Design Reviews	Prepare, submit and update Proprietary Design Reviews in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.8.5

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.64	Design Management	Proprietary Design Reviews	Prepare, submit, and update Design Deliverables in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	5 days	Technical Requirements, Division 01, Section 1.8.5
1.65	Design Management	Proprietary Design Reviews	Prepare, submit, and update comment and resolution log for design changes in accordance with the Contract Documents.	10 days	3 per D&C Failure Event	$150	10 days	Technical Requirements Division 01, Section 1.8.5.3
1.66	Design Management	Release for Construction Documents	Prepare, submit and update RFCDs for approval by City in accordance with the Contract Documents	None	5 per D&C Failure Event	-	1 day	Technical Requirements, Division 01, Section 1.8.6
1.67	Sustainability	Sustainability	Prepare, submit and update Sustainability Management Plan in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.9.1
1.68	Building Information Modelling	Building Information Modelling	Prepare, submit and update BIM Project Execution Plan in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.10.1.1
1.69	Building Information Modelling	Building Information Modelling	Appoint, as needed, a BIM Manager in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$500	3 days	Technical Requirements, Division 01, Section 1.10.1.3
1.70	Construction Management	Construction Security	Prepare, submit and update Project Site Security Plan in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.2

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.71	Construction Management	Maintenance of Traffic and Work Restrictions	Comply with requirements for maintenance of traffic and work restrictions in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.3
1.72	Construction Management	Maintenance of Traffic and Work Restrictions	Prepare, submit and update a Transportation Management Plan in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.3.1
1.73	Construction Management	Maintenance of Traffic and Work Restrictions	Prepare, submit and update a Traffic Control Plan in accordance with the Contract Documents	10 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.3.2.1
1.74	Construction Management	Temporary Facilities and Utilities	Prepare, submit and update City Temporary Utility Designs and Engineered Drawings in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.11.4.1
1.75	Construction Management	Temporary Facilities and Utilities	Provide temporary Project Management Office in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.11.4.2
1.76	Construction Management	Temporary Facilities and Utilities	Provide temporary Construction Management Office in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.11.4.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
1.77	Construction Management	Project Site Cleaning	Comply with Project Site maintenance requirements in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.6
1.78	Construction Management	Final Cleaning	Conduct final cleanup of the Project Site in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.7
1.79	Construction Management	City Access Period Make-Ready Requirements	Prepare the IT/Comms Site in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.11.8
1.80	Coordination with Third Parties	Third Party Coordination	Engage a Third Party in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$500	3 days	Technical Requirements, Division 01, Section 1.12.1
1.81	Coordination with Utility Owners	Utility Coordination Work Plan	Prepare, submit and update Coordination Work Plan (UCWP) in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.13.1
1.82	Coordination with Utility Owners	Utility Project Execution Plan	Prepare, submit and update Utility Project Execution Plan in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.13.2,
1.83	Communication and Public Information	Public Outreach and Engagement	Meet requirements to support City Public Outreach and Engagement Program	3 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 01, Section 1.15.2.1-2
1.84	Communication and Public Information	Public Outreach and Engagement	Prepare, submit and update Public Outreach and Engagement Plan in	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 01, Section 1.15.2.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with Contract Documents					
1.85	Asset Management Plan	Asset Management Plan	Prepare, submit and update Asset Management Plan in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	5 days	Technical Requirements, Division 01, Section 1.16
1.86	Computer Aided Facility Management System (CAFM)	Computer Aided Facility Management System (CAFM)	Utilize Computer Aided Facility Management System in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 01, Section 1.17
2	**Division 04 - Supplemental Design Criteria**							
2.1	Supplemental Acoustic Requirements	Proprietary Design Review Deliverables	Comply with submittal requirements for Supplemental Acoustic Requirements for Proprietary Design Review Deliverables in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 04, Section 1.5
2.2	Supplemental Acoustic Requirements	Proprietary Design Review Deliverables	Prepare, submit and update Testing Report in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 04, Section 1.5.5
2.3	Seismic Resilience Performance Requirements	Deliverables	Comply with submittal requirements for seismic resilience performance for Proprietary Design	5 days	5 per D&C Failure Event	$300	2 days	Technical Requirements, Division 04, Section 2

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			Review Deliverables in accordance with the Contract Documents					
4	**Division 10 - SFPW Div 01 General Requirements for Construction**							
4.1	Existing Utility Facilities	Governmental Facilities	Comply with requirements related to Governmental Facilities within excavations in accordance with Contract Documents	3 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 00 73 20 (1.2)
4.2	Existing Utility Facilities	Non-governmental Facilities	Comply with requirements related to Non-governmental Facilities in accordance with Contract Documents	3 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 00 73 20 (1.3)
4.3	Utility Crossings	Existing Utility Company	Comply with requirements for supporting working and protecting existing utility company facilities in accordance with Contract Documents	3 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 00 73 21
4.4	Special Instructions	General	Comply with requirements associated with Special Instruction in accordance with Contract Documents	3 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 12 00

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.5	Overhead Contact System (OS) Isolation Support	General	Comply with requirements associated with overhead contract system isolation support	3 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 13 00
4.6	Artwork Coordination	Artwork Coordination	Comply with requirements for schedules for Pre-Art Installation Conference, Artwork installation and Artwork acceptance in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 14 00 (1.3, 1.4)
4.7	Artwork Coordination	Artwork Coordination	Comply with requirements by the City and artwork acceptance by Principal Project Company in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 10, Section 01 14 00 (1.5, 1.11)
4.8	Partnering Procedures	Partnering Training	Attend, complete, and comply with City Partnering Fundamentals Training in accordance with Training Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 10, Section 01 31 33 (1.6)
4.9	Partnering Procedures	Partnering Elements	Comply with requirements for partnering in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 10, Section 01 31 33 (3.2)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.10	Photographic Documentation	Photographic Documentation	Comply with requirements for administrative and procedural requirements for construction photographs in accordance with the Contract Documents	3 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 32 33 (3.1A)
4.11	Environmental Procedures	Submittals	Prepare, submit and update all Submittals to City's Authorized Representative prior to mobilization in accordance with the Contract Documents except those specifically listed in this Table A1 – D&C Failure Event Table with separate Deductions and Noncompliance Points	3 days	3 per D&C Failure Event	-	2 days	Technical Requirements, Division 10, Section 01 35 43 (1.4.A.1)
4.12	Environmental Procedures	Qualifications	Comply with various qualified personnel	3 days	3 per D&C Failure Event	$1,000	2 days	Technical Requirements, Division 10, Section 01 35 43 (1.4.A.2)
4.13	Environmental Procedures	Submittals	Prepare, submit and update all Submittals to City's Authorized Representative during construction in accordance with the Contract Documents except those specifically listed in this Table A1 – D&C Failure Event Table with	3 days	3 per D&C Failure Event	$300	2 days	Technical Requirements, Division 10, Section 01 35 43 (1.4.B)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			separate Deductions and noncompliance Points					
4.14	Environmental Procedures	Submittals	Prepare, submit and update all submittals to ERO prior to receiving a final certificate of occupancy	3 days	3 per D&C Failure Event	$1,000	2 days	Technical Requirements, Division 10, Section 01 35 43 (1.4.B)
4.15	Environmental Procedures	Inspection and Monitoring	Cooperate with inspection and monitoring activities, including providing access and making facilities/ records available	3 days	3 per D&C Failure Event	$300	2 days	Technical Requirements, Division 10, Section 01 35 43 (1.5.C)
4.16	Environmental Procedures	Off-road equipment and engines	Comply with requirements associated with Administrative Code Section 6.25 and Chapter 25 of the Environment Code	None	3 per D&C Failure Event	$100	1 day	Technical Requirements, Division 10, Section 01 35 43 (1.5.D)
4.17	Environmental Procedures	Tree Protection	Provide adequate protection or selective pruning to trees	None	3 per D&C Failure Event	$250	1 day	Technical Requirements, Division 10, Section 01 35 43 (1.5.E.1)
4.18	Environmental Procedures	Tree Protection	Appropriate presence of Specialty Environmental Monitor - Archaeologist	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (1.5.F)
4.19	Environmental Procedures	General Construction	Maintain the Project Site and Construction Work areas in a clean and safe condition	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.1.A)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.20	Environmental Procedures	Stockpile Management	Implement stockpile management best practices	1 day	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.2)
4.21	Environmental Procedures	Dust Control	Ensure dust mitigation measures are in place during construction	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.3)
4.22	Environmental Procedures	Dust Control	Comply with grading/ excavation including complying with Site-Specific Dust Control Plan (DCP)	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.3)
4.23	Environmental Procedures	Stormwater Management	Maintain effective Project-specific sediments controls	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.4)
4.24	Environmental Procedures	Spills and Leaks	Comply with spills and leaks best management practices	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.5)
4.25	Environmental Procedures	Emissions-Control	Comply with Emissions- Control best management practices	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.5)
4.26	Environmental Procedures	Noise Control	Comply with Noise Control best management practices including preparation of Noise- Control Plan	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.6)
4.27	Environmental Procedures	Asbestos	Comply with regulations for construction impacted by Naturally Occurring Asbestos	None	5 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.8)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.28	Environmental Procedures	Night Work	Comply with requirements for Night Works in accordance with Contract Documents	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.10)
4.29	Environmental Procedures	Bird Protection	Comply with environmental regulations for bird protection	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.12)
4.30	Environmental Procedures	Tree Protection	Arrange meeting with City, General Contractor and others prior to commencement of work	5 days	1 per D&C Failure Event	$1,000	3 days	Technical Requirements, Division 10, Section 01 35 43 (3.14.A)
4.31	Environmental Procedures	Tree Protection	Comply with environmental requirements associated with tree management and protection	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.14)
4.32	Environmental Procedures	Site Restoration	Comply with environmental requirements associated with site restoration	5 days	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.15)
4.33	Environmental Procedures	Paleontological Resources	Comply with environmental requirements associated with unanticipated paleontological resources	None	5 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.16)
4.34	Environmental Procedures	Human Remains	Comply with environmental requirements associated encounter of human remains	None	5 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.17)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.35	Environmental Procedures	Archaeological Resource Protection	Comply with environmental requirements associated with archaeology protection	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.18)
4.36	Environmental Procedures	Historical Cultural Resource Protection	Comply with environmental requirements associated with historical cultural resource protection	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.19)
4.37	Environmental Procedures	Vibration Control Plan	Prepare, submit and update Vibration Control Plan in accordance with contract documents	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 43 (3.19)
4.38	Environmental Procedures	Work in Air Pollutant Exposure Zone	Comply with environmental requirements associated with SF Environment Code Chapter 25	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.20)
4.39	Environmental Procedures	Construction Site Runoff Control Permit	Prepare, submit and update Construction Site Runoff Control Permit in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$1,000	3 days	Technical Requirements, Division 10, Section 01 35 43 (3.21)
4.40	Environmental Procedures	Construction Site Runoff Control Permit	Comply with requirements and conditions associated with the Construction Site Run off Control Permit	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.21)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.41	Environmental Procedures	City Water-Quality Permitting	Comply with requirements associated with geotechnical well or soil boring	None	3 per D&C Failure Event	$1,000	1 day	Technical Requirements, Division 10, Section 01 35 43 (3.23)
4.42	Hazardous Building Materials - Scope of Work	Hazardous Building Materials - Scope of Work	Prepare, submit and update to City certifications or proof of the environmental trainings in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 44 (1.1-E)
4.43	Hazardous Building Materials - Scope of Work	Abatement Contractor's Qualifications	Prepare, submit and update Hazardous Materials Management Plan (HMMP) in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 44 (1.4-D)
4.44	Hazardous Building Materials - Scope of Work	Waste Handling and Characterization	Prepare, submit and update Waste Management Plan (WMP) as specified under Section 02 80 13 Building Related Hazardous Materials Remediation	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 44 (1.8-A)
4.45	Hazardous Building Materials - Scope of Work	Waste Handling and Characterization	Use a bill of lading or non-hazardous waste form in accordance with the Contract Documents when shipping fluorescent lamps to a recycler	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 44 (1.8-O)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.46	Hazardous Building Materials - Scope of Work	Waste Handling and Characterization	Provide, Prepare, submit and update Uniform Hazardous Waste Manifest Form for asbestos hazardous waste shipments in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$300	3 days	Technical Requirements, Division 10, Section 01 35 44 (1.8-Q)
4.47	Hazardous Building Materials - Scope of Work	Use of Non-Hazardous Waste Manifest for Class II Material or Lesser	Prepare, submit and update the Non-Hazardous Waste Manifest form for the Generator's signature at least 72 hours in advance in accordance with the Contract Documents	1 day	5 per D&C Failure Event	$300	0.5 day	Technical Requirements, Division 10, Section 01 35 44 (1.9)
4.48	Health and Safety Criteria	Health and Safety Plan	Prepare, submit and update a complete Health and Safety Plan (HASP) in accordance with the Contract Documents	3 days	5 per D&C Failure Event	-	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.5)
4.49	Health and Safety Criteria	Injury and Illness Prevention Programs (IIPP) and Code of Safe Practices (CSP)	Prepare, submit and update Injury and Illness Prevention Programs (IIPP) and Code of Safe Practices (CSP) in accordance with the Contract Documents	3 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.6)
4.50	Health and Safety Criteria	Submittals	Prepare, submit and update all other health and safety Submittals apart from HASP, IIPP, and CSP in	3 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.3A)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with the Contract Documents					
4.51	Health and Safety Criteria	Submittals	Prepare, submit and update sufficient information, to demonstrate the qualifications and experience of the it's Project Safety Representative (PSR) in accordance with the Contract Documents	2 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.3B)
4.52	Health and Safety Criteria	Submittals	Make submissions as required throughout the course of construction - daily inspection reports and records of toolbox meetings in accordance with the Contract Documents	2 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.3C)
4.53	Health and Safety Criteria	Submittals	Make submissions as required throughout the course of construction - initial and final incident or Near-miss investigation reports in accordance with the Contract Documents	1 day	3 per D&C Failure Event	$150	0.5 day	Technical Requirements, Division 10, Section 01 35 45 (1.3C)
4.54	Health and Safety Criteria	Submittals	Make submissions as required throughout the course of construction - HASP	2 days	3 per D&C Failure Event	$150	1 day	Technical Requirements, Division 10, Section 01 35 45 (1.3C)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			modification requests, and others in accordance with the Contract Documents					
4.55	Health and Safety Criteria	Project Safety Representative (PSR)	Comply with Project Safety Representative (PSR)	10 days	3 per D&C Failure Event	$150	5 days	Technical Requirements, Division 10, Section 01 35 45 (1.7, 1.21)
4.56	Health and Safety Criteria	Contractor's Asbestos Competent Person	Comply with Asbestos Competent Person (ACP)	5 days	3 per D&C Failure Event	$150	2 days	Technical Requirements, Division 10, Section 01 35 45 (1.8)
4.57	Health and Safety Criteria	Accident Documentation and Reporting	Comply with accident documentation and reporting in accordance with the Contract Documents	1 day	3 per D&C Failure Event	$150	0.5 days	Technical Requirements, Division 10, Section 01 35 45 (1.22)
4.58	Health and Safety Criteria	San Francisco Municipal Transportation Agency (SFMTA) Health and Safety Requirements	Comply with San Francisco Municipal Transportation Agency (SFMTA) Health and Safety Requirements	5 days	3 per D&C Failure Event	$150	2 days	Technical Requirements, Division 10, Section 01 35 45 (1.24)
4.59	Additional Environmental Procedures	Submittals	Prepare, submit and update all submittals in accordance with the Contract Documents	5 days	3 per D&C Failure Event	-	3 days	Technical Requirements, Division 10, Section 01 35 50 (Part 2)
4.60	Additional Environmental Procedures	Execution	Comply with requirements associated with the execution of the additional	None	3 per D&C Failure Event	-	1 day	Technical Requirements, Division 10, Section 01 35 50 (Part 3)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			environmental procedures					
4.61	Temporary Facilities and Controls	Temporary Project Sign	Comply with Temporary Project Sign in accordance with the Contract Documents	10 days	1 per D&C Failure Event	$50	5 days	Technical Requirements, Division 10, Section 01 50 00
4.62	Material Reduction and Recovery Plan	Material Reduction and Recovery Plan	Prepare, submit and update a Demolition Debris Recovery Plan (DDRP) in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	5 days	Technical Requirements, Division 10, Section 01 74 50 (1.4)
4.63	Material Reduction and Recovery Plan	Material Reduction and Recovery Plan	Comply with all provisions for Material Reduction and Recovery Plan including monthly updates and Final Recovery Report	5 days	3 per D&C Failure Event	$150	2 days	Technical Requirements, Division 10, Section 01 74 50, (1.5-1.7)
4.64	Closeout Procedures	Substantial Completion	Prepare, submit and update all Closeout Procedures in accordance with the Contract Documents	5 days	5 per D&C Failure Event	-	3 days	Technical Requirements, Division 10, Section 01 77 00, (1.3)
4.65	Closeout Procedures	Project Record Documents	Prepare, submit and update the final approved Project Record Drawings to the City Representative prior to Final Acceptance. Refer to Section 01 78 39 - Project Record Documents	5 days	None	$300	3 days	Technical Requirements, Division 10, Section 01 77 00, (1.6)

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.66	Operation and Maintenance Data	Operation and Maintenance Data Requirements	Comply with submittal and scheduling requirements for Operations and Maintenance Data	5 days	5 per D&C Failure Event	-	3 days	Technical Requirements, Division 10, Section 01 78 23, 1.4
4.67	Operation and Maintenance Data	Electronic and Hard Copy Formats for O&M Manual	Comply with requirements for submittals of Electronic and Hard Copy Formats for O&M Manual	5 days	5 per D&C Failure Event	-	2 days	Technical Requirements, Division 10, Section 01 78 23, 1.5, 1.6
4.68	Operation and Maintenance Data	Instruction of City Personnel	Comply with requirements with respect to training schedules and procedures	5 days	3 per D&C Failure Event	-	3 days	Technical Requirements, Division 10, Section 01 78 23, Section 1.8
4.69	Warranties	Warranties	Comply with all warranty requirements in accordance with the Contract Documents	5 days	None	-	3 days	Technical Requirements, Division 10, Section 01 78 36, (1.2, 1.3, 1.4)
4.70	Structure Demolitions	Submittals	Prepare, submit and update all submittals in accordance with the Contract Documents	3 days	1 per D&C Failure Event	$300	2 days	Technical Requirements, Division 10, Section 02 41 16 (1.06)
4.71	Structure Demolitions	Execution	Comply with requirements associated with the execution of structure demolition	None	3 per D&C Failure Event	$300	1 day	Technical Requirements, Division 10, Section 02 41 16 (Part 3)
4.72	Hazardous Building Materials Remediation	Submittals	Perform all Hazardous Materials remediation work as per this specification	5 days	3 per D&C Failure Event	$300	2 days	Technical Requirements, Division 10, Section 02 80 13

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
4.73	Environmental Management of Excavated Materials	Environmental Management of Excavated Materials	Comply with requirements for Environmental Management of Excavated Materials	5 days	3 per D&C Failure Event	$300	2 days	Technical Requirements, Division 10, Section 02 81 10
3	**Contracting and Labor Practices**							
3.1	Small Business Enterprise	Good Faith Efforts	No more than 2 failures to meet the requirements in accordance with Section 1.6 of the SBE Plan except for Sections 1.6.13, 1.6.12 and 1.6.10	5 days (if applicable)	1 per D&C Failure Event	$1,000	2 days (if applicable)	SBE Plan, Section 1.6.1-11
3.3	Small Business Enterprise	Reporting	Prepare and submit OEPP Updates in accordance with Contract Documents	7 days	5 per D&C Failure Event	$300	5 days	SBE Plan, Section 1.5.3
3.4	Small Business Enterprise	SBE Trucking Program	Submit a monthly SBE trucking report or submit a monthly report certifying that all Good Faith Efforts have been performed in accordance with the Contract Documents	7 days	5 per D&C Failure Event	$500	5 days	SBE Plan, Sections 1.6.11 & 1.10
3.5	Small Business Enterprise	Meet & Confer	Conduct a Meet & Confer meeting in accordance with the Contract Documents	30 days	3 per D&C Failure Event	$300	5 days	SBE Plan, Section 1.6.10
3.6	Small Business Enterprise	Remedies	Conduct Noncompliance meetings in	7 days	5 per D&C Failure Event	$1,000	5 days	SBE Plan, Section 1.13

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with the Contract Documents					
3.7	Small Business Enterprise	Reporting	Prepare and submit reports in accordance with the Contract Documents	7 days	5 per D&C Failure Event	$2,000	2 days	SBE Plan, Sections 1.6.13 & 1.11
3.8	Small Business Enterprise	Subcontractor Commitments	Utilize and meet the specific commitments made to individual SBE firms in accordance with the Contract Documents	None	None	10% of the non-utilization portion of the LBE's subcontract amount	N/A	SBE Plan, Sections 1.5,, & 1.13
3.9	Small Business Enterprise	Subcontractor Commitments	Comply with Section 1.5.4 when terminating a SBE	None	30 points per incident	$7,500	N/A	SBE Plan, Section 1.5.4
3.10	Small Business Enterprise	Set-Asides	Meet the Set-Aside Percentage(s) (or demonstrate Good Faith Efforts/OEPP)	None	None	$50,000 + $25,000 for every 1% below the requirement	N/A	SBE Plan, Section 1.3.2
3.11	Small Business Enterprise	SBE Goals	Meet the Design & Professional Services SBE Goal (or demonstrate Good Faith Efforts/OEPP) in accordance with the Contract Documents	None	None	$100,000 + $25,000 for every 1% below the requirement	N/A	SBE Plan, Sections 1.3 & 1.13
3.13	Small Business Enterprise	SBE Goals	Meet the Construction SBE Goal (or demonstrate Good Faith Efforts/OEPP) in accordance with the Contract Documents	None	None	$100,000 + $25,000 for every 1% below the requirement	N/A	SBE Plan, Sections 1.3 & 1.13

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
3.15	Small Business Enterprise	Contract Provisions	Incorporate Contract Assurances section of the SBE Program	90 days	5 per D&C Failure Event	$300	5 days	SBE Plan, Section 1.6.12
3.16	Contracting and Labor Practices	Labor Standards	Comply and require all Contractors to comply, with all applicable federal and State labor, occupational safety and health Laws and orders, including payment of prevailing wages	N/A	3 per D&C Failure Event	-	N/A	Project Agreement, Section 9.8 & Exhibit 16B
3.17	Contracting and Labor Practices	Labor Standards	Submit to City certified payroll records for all employees of Principal Project Company and Contractors at all tiers for the preceding calendar month	5 days	5 per D&C Failure Event	-	N/A	Project Agreement, Section 9.8
3.18	Contracting and Labor Practices	Labor Standards	Require that individuals performing the Work be qualified, experienced, competent, and skilled in the performance of the Work and related obligations as per requirement	N/A	5 per D&C Failure Event	-	N/A	Project Agreement, Section 9.8
3.19	Contracting and Labor Practices	Local Hiring Requirements for Construction Work and	Comply with local hiring requirements for Construction Work and Renewal	5 days	5 per D&C Failure Event	-	N/A	Project Agreement, Section 9.9

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
		Renewal Work	Work as per requirements					
3.20	Contracting and Labor Practices	First Source Hiring Program	Comply with all applicable provisions of the First Source Hiring Program as per requirement	5 days	5 per D&C Failure Event	-	N/A	Project Agreement, Section 9.10
3.21	Contracting and Labor Practices	SFMTA Employment Training Program	Comply with all applicable provisions of the SFMTA Employment Training Program	5 days	5 per D&C Failure Event	-	N/A	Project T Agreement, Section 9.11
4	**Commissioning and Testing Requirements**							
4.1	Commissioning Provider (CxP)	Commissioning Provider (CxP) appointment	Prepare, submit and update details on the appointment of the CxP entity for review and acceptance by City	10 days	3 per D&C Failure Event	$150	5 days	Technical Requirements, Division 6, Section 6.5
4.2	Commissioning Scope	Pre-Construction Requirements	Prepare, submit and update Final Commissioning Plan in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 6, Section 6.7.2.1
4.3	Commissioning Scope	Pre-Construction Requirements	Maintain Commissioning Issues and Resolution Log in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 6, Section 6.7.2.3 and 6.7.3.2
4.4	Commissioning Scope	Pre-Construction Requirements	Prepare, submit and update training requirements for City personnel in	10 days	3 per D&C Failure Event	$150	5 days	Technical Requirements, Division 6, Section 6.7.2.5

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with the Contract Documents					
4.5	Commissioning Scope	Construction Requirements	Provide notice and results of Functional Performance Testing in accordance with the Contract Documents	5 days	3 per D&C Failure Event	$150	3 days	Technical Requirements, Division 6, Section 6.7.3.6
4.6	Commissioning Scope	Construction Requirements	Prepare, submit and update Commissioning Report in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 6, Section 6.7.3.7
4.7	Commissioning Scope	Construction Requirements	Prepare, submit, and update Operation and Maintenance Manual in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	5 days	Technical Requirements, Division 6, Section 6.7.3.8
4.8	Commissioning Scope	Construction Requirements	Provide Budgeting and Lifecycle Costing Support to the City in accordance with the Contract Documents	5 days	1 per D&C Failure Event	$50	3 days	Technical Requirements, Division 6, Section 6.7.3.9
4.9	Commissioning Scope	Construction Requirements	Submit and update the Systems Manual in accordance with the Contract Documents	10 Days	None	$50	10 days	Technical Requirements, Division 6, Section 6.7.4.1
4.10	Commissioning Scope	Construction Requirements	Meet requirements associated with the Post Occupancy Review of Building Operations in	10 days	None	$150	3 days	Technical Requirements, Division 6, Section 6.7.4.3

ID	Main Heading	Subheading	Failure To	Rectification Time	D&C Noncompliance Points	D&C Noncompliance Event Deductions in $ (for New or Recurred Events)	Recurrence Period	Reference Section(s) of Contract Documents
			accordance with the Contract Documents					
4.11	Commissioning Scope	Construction Requirements	Meet requirements associated with the Near Warranty End Post Occupancy Review in accordance with the Contract Documents	10 days	None	$150	3 days	Technical Requirements, Division 6, Section 6.7.4.4
4.12	Monitoring-Based Commissioning	Monitoring-Based Commissioning	Prepare, submit and update Monitoring-Based Commissioning procedures in accordance with the Contract Documents	10 days	5 per D&C Failure Event	$300	5 days	Technical Requirements, Division 6, Section 6.8
4.13	Operational Readiness	Operational Readiness	Prepare, submit and update an integrated Operational Readiness Plan in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 6, Section 6.9.
4.14	Move- In Services	Move- In Plan	Prepare, submit, and update Move- In Plan in accordance with the Contract Documents	5 days	5 per D&C Failure Event	$300	3 days	Technical Requirements, Division 6, Section 6.10.
4.14	Move- In Services	Move- In Plan	Comply with Move-in Services requirements in accordance with Contract Documents	5 days	5 per D&C Failure Event	$150	3 days	Technical Requirements, Division 6, Section 6.10.

EXHIBIT 4B

AVAILABILITY PAYMENT MECHANISM

1 Availability Payments

1.1 Availability Payment

Subject to any limitations and exceptions expressly provided in the Agreement, the applicable portions of the Availability Payments shall be paid to the Non-Profit Entity commencing on or after the applicable Payment Commencement Date. The Availability Payment for each Contract Quarter (q) ("AP(q)") shall be calculated for any period as follows:

$$AP_q = APC_q + (API_q \times ESC_q)$$

Where:

APC_q	means the capital portion of the Availability Payment for Contract Quarter q, which shall be equal to $8,215,261. The APC consists of $6,315,261 of base capital payments ("**APC_{Base}**") and $1,900,000 of date-certain capital payments ("**APC_{DC}**").
API_q	means the index-linked portion of the Availability Payment for Contract Quarter q, which shall be equal to $92,000.
ESC_q	is the escalation factor calculated in accordance with Section 4 (Escalation Factor) of this Exhibit 4B (Availability Payment Mechanism)

1.2 Not Used.

1.3 Availability Payment Prorations

1.3.1 If in the Contract Quarter in which the Payment Commencement Date falls or in the last Contract Quarter of the Term, a pro rata adjustment shall be made to reflect the actual number of days in the Contract Quarter from and including the Payment Commencement Date (for the first Contract Quarter) and up to and including the last day of the Term (for the last Contract Quarter) for purposes of calculating the Availability Payments.

1.4 Invoicing and Payment of Availability Payments

1.4.1 General

For each Availability Payment, Non-Profit Entity shall submit an invoice no later than the 10th day of the month immediately following the relevant Contract Quarter in accordance with the process in Section 11.4 (Invoice, Other Amounts and Payment) of the Agreement. Subject to Section 1.4.2, the City will pay Non-Profit Entity the Availability Payment accordance with the process in Section 11.4 (Invoice, Other Amounts and Payments) of the Agreement. For the avoidance of doubt, Non-Profit Entity shall not

submit an invoice for the first Availability Payment before July 1, 2031. Notwithstanding the foregoing, City shall not be obligated to make payment of the first Availability Payment before July 1, 2031 (which is the first full Contract Quarter after April 1, 2031), with such payment to be made in accordance with the process in Section 11.4 (Invoice, Other Amounts and Payment).

1.4.2 D&C Period Residual Amounts Adjustment

The first Availability Payment invoice shall reflect a deduction equal to the certified D&C Period Residual Amounts less $500,000. This deduction shall be shown as a separate line item labeled "D&C Period Residual Amounts Adjustment" and shall be accompanied by the Collateral Agent's certification and LTA certificate required under Section 11.10.2 of the Agreement. This adjustment (if applicable) applies only to the first Availability Payment and does not affect subsequent Availability Payments.

2 ESCALATION FACTOR

2.1 The Escalation Factor shall be calculated in accordance with the following formula:

$$ESC_y = {CPI_y}/{CPI_0}$$

where:

ESC*$_y$** is the escalation factor applicable to the relevant Contract Year ***y;

CPI*$_y$** is the most recently published Consumer Price Index value as of the commencement of Contract Year ***y, as published by US Bureau of Labor Statistics, for Urban Consumers, for the San Francisco-Oakland-Hayward, CA areas (All Items). *ESC*$_y$ shall apply to all calculations relating to Contract Year ***y***; and

***CPI*$_0$** is [●], which represents the prevailing value of Consumer Price Index as of the Effective Date, published by US Bureau of Labor Statistics, for Urban Consumers for the San Francisco-Oakland-Hayward, CA areas (All Items).

EXHIBIT 5

FINANCE DOCUMENTS

Exhibit 5A: List of Initial Financing Documents

Exhibit 5B: Form of Direct Agreement

Exhibit 5C: Intentionally Omitted

Exhibit 5D: Form of Opinion from City's Legal Counsel

Exhibit 5E: Form of Opinion from Non-Profit Entity's Legal Counsel

Exhibit 5F: Base Capital MaxAP Adjustment for Base Interest Rate and Credit Spread Fluctuation

Exhibit 5G: Financing Document Terms

Exhibit 5H: Form of Opinion from Principal Project Company's Legal Counsel

EXHIBIT 5A

LIST OF INITIAL FINANCING DOCUMENTS

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PART A: INITIAL FINANCING AGREEMENTS

- That certain collateral agency agreement between Non-Profit Entity and Collateral Agent (acting in its capacity as collateral agent, bond trustee, and securities intermediary), dated as of the date of Financial Close
- That certain bond indenture between the Conduit Issuer and Collateral Agent (acting in its capacity as bond trustee), dated as of the date of Financial Close
- That certain loan agreement between Conduit Issuer and Non-Profit Entity, dated as of the date of Financial Close

PART B: INITIAL SECURITY DOCUMENTS

- That certain Direct Agreement among City, Non-Profit Entity and Collateral Agent, dated as of the date of Financial Close
- That certain Project Implementation Agreement lenders' direct agreement among Non-Profit Entity, Principal Project Company, and Collateral Agent, dated as of the date of Financial Close
- That certain D&C Contractor lenders' direct agreement among Non-Profit Entity, Collateral Agent, D&C Contractor, and D&C Contractor Guarantor, dated as of the date of Financial Close
- That certain borrower security agreement between Non-Profit Entity and Collateral Agent, dated as of the date of Financial Close
- That certain Principal Project Company security agreement between Principal Project Company and Collateral Agent, dated as of the date of Financial Close
- That certain Equity Member pledge agreement between PNC Holdco LLC and Collateral Agent
- That certain Non-Profit Parent pledge agreement between Non-Profit Parent and Collateral Agent, dated as of the date of Financial Close

EXHIBIT 5B

FORM OF DIRECT AGREEMENT

THIS DIRECT AGREEMENT dated as of [_____], 2026 ("**Direct Agreement**") among the City and County of San Francisco ("**City**"), a municipal corporation, acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code, and U.S. Bank Trust Company, National Association, as trustee or collateral agent (in such capacity, together with its successors in such capacity, the "**Collateral Agent**") for the Lenders (as defined in the IF DBF Agreement (as defined below)).

WHEREAS

(A) On November 2, 2022, City and Potrero Neighborhood Collective LLC, a limited liability company organized under the laws of the State of Delaware ("**PNC**"), entered into a Predevelopment Agreement for the Potrero Yard Modernization Project (the "**Predevelopment Agreement**"), which is comprised of a transit operations facility ("**Infrastructure Facility**"), and certain interfaces with a mixed-income housing and commercial component ("**Housing and Commercial Component**");

(B) Further to the engagement of City and PNC under the Predevelopment Agreement, it was determined to deliver the Infrastructure Facility pursuant to a design-build-finance structure;

(C) City and PNC agreed upon the terms provided in the Project Agreement dated as of _____, 2026, between the City and NPE (the "**IF DBF Agreement**") for the development of the Infrastructure Facility pursuant to the processes described in the Predevelopment Agreement;

(D) The Non-Profit Entity will, in turn, contemporaneously with the execution of this Agreement, enter into a project implementation agreement dated as of the date hereof (the "**Project Implementation Agreement**") with Potrero Neighborhood Collective LLC (the "**Principal Project Company**" or "**PPC**") whereby the Principal Project Company will design and build the Project and perform certain support and administrative functions with respect to the financing of the Project, all as more particularly described in the Project Implementation Agreement, and perform on behalf of the Non-Profit Entity certain obligations of the Non-Profit Entity under the IF DBF Agreement;

(E) In order to enable Non-Profit Entity to finance certain activities and certain obligations with respect to the Project, the California Municipal Finance Authority ("**CMFA**"), as the conduit issuer, will issue the bonds, and will loan the bond proceeds to the Non-Profit Entity, on the terms set out in the Financing Agreements and Security Documents, for the purpose of financing the Project, subject to provision of certain assurances from City regarding Lender's and Collateral Agent's rights in the event of an Event of Default or NPE Default;

(F) In reliance on such assurances, and on this Direct Agreement, the bonds will be issued and the proceeds made available for the purpose of financing or Refinancing all or part of the Project; and

(G) The execution of this Direct Agreement by City in favor of the Collateral Agent is a condition precedent to the issuance of the bonds and the related loan to Non-Profit Entity.

NOW, THEREFORE, in consideration of the foregoing and the mutual terms and covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties, each of City, Non-Profit Entity and Collateral Agent hereby agree as follows:

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

Capitalized terms used but not otherwise defined in this Direct Agreement and references used but not construed in this Direct Agreement have the respective meanings and constructions assigned to such terms in the IF DBF Agreement. In addition, the following terms have the meanings specified below:

City has the meaning given to it in the Preamble.

City Notice has the meaning given to it in Section 5.1 (City Notice of Termination and Exercise of Remedies; Lender Notice of Intent).

Collateral Agent has the meaning given to it in the Preamble.

Control Agreement means the Control Agreement, dated as of the date hereof, by and among NPE, City and Custodian, with respect to each Allowance Account.

Cure Period means the period starting on the date of the receipt of the City Notice and ending on the earlier of:

(a) the Step-in Date; and

(b) 90 days after the expiration of any cure periods provided to Non-Profit Entity under the IF DBF Agreement, provided that:

(i) if the Collateral Agent provides a Notice of Intent to City within 30 days of the date of the receipt of the City Notice indicating that the Lenders' intend to proceed to cure the NPE Default(s) or to exercise step-in rights, then the Cure Period will end on the earlier of the Step-in Date and 120 days after the expiration of any cure periods provided to Non-Profit Entity under the IF DBF Agreement; and

(ii) if the Collateral Agent is prohibited from curing any non-monetary default or from substituting Non-Profit Entity with the Substituted Entity by any process, stay or injunction issued by any Governmental Entity or pursuant to any bankruptcy or insolvency proceeding or other similar proceeding

involving Non-Profit Entity, then the time period specified herein for curing a default shall be extended for the period of such prohibition.

Custodian means U.S. Bank Trust Company, National Association, as custodian under the Control Agreement.

Default means an Event of Default as defined in any Financing Agreement or any event or circumstance specified in any Financing Agreement which would (with the expiration of a grace period, the giving of notice, the lapse of time, the making of any determination under the Financing Documents or any combination of any of the foregoing) be an Event of Default.

Direct Agreement has the meaning given to it in the Preamble.

Discharge Date means the date on which all of the obligations of Non-Profit Entity under the Financing Documents have been irrevocably discharged in full to the satisfaction of the Collateral Agent.

Event of Default means an Event of Default as defined in any Financing Agreement.

IF DBF Agreement has the meaning given to it in the Recitals.

Lender Notice has the meaning given to it in Section 7.1 (Lender Notice).

Notice of Intent has the meaning given to it in Section 5.4 (City Notice of Termination and Exercise of Remedies; Lender Notice of Intent).

Non-Profit Entity or **NPE** has the meaning given to it in the Preamble.

Predevelopment Agreement has the meaning given to it in the Recitals.

Principal Project Company or **PPC** has the meaning given to it in the Preamble.

Project has the meaning given to it in the Recitals.

Property means any right or interest in or to property of any kind whatsoever, whether real, personal or mixed and whether tangible or intangible.

Revival Date has the meaning given to it in Section 14.1 (Revival of Remedies).

Step-in Date has the meaning given to it in Section 10.1 (Rights and Obligations on Step-in).

Step-in Notice has the meaning given to it in Section 9.1 (Step-in Notice).

Step-in Party has the meaning given to it in Section 9.2 (Step-in Notice).

Step-in Period means the period from and including the Step-in Date until the earliest of:

(a) the Substitution Effective Date;

(b) the Step-out Date;

(c) the date of termination of the IF DBF Agreement by City in accordance with this Direct Agreement and the IF DBF Agreement;

(d) the date of the expiration or early termination of the Term under the IF DBF Agreement; and

(e) 12 calendar months after the Step-in Date,

provided, however, that if the Collateral Agent is prohibited from curing any nonmonetary default after the Step-in Date or from substituting Non-Profit Entity with the Substituted Entity by any process, stay or injunction issued by any Governmental Entity or pursuant to any bankruptcy or insolvency proceeding or other similar proceeding involving Non-Profit Entity, then the time periods specified herein for curing a default shall be extended for the period of such prohibition.

Step-out Date means the date upon which the notice period set forth in any Step-out Notice expires.

Step-out Notice has the meaning given to it in Section 11 (Step-out).

Substitute Accession Agreement means the agreement to be entered into by a Substituted Entity pursuant to Section 13.1 (Substitution).

Substituted Entity means any Person selected by Lenders and approved by City in accordance with Section 12 (Substitution Entities and Substitution Proposals) to perform all or a portion of Non-Profit Entity's obligations and succeed to all or a portion of Non-Profit Entity's rights under the Contract Documents.

Substituted PPC Entity means any Person selected by Lenders and approved by City in accordance with Section 18 (Substituted PPC Entity) to perform all or a portion of PPC's obligations and succeed to all or a portion of PPC's rights under the Project Implementation Agreement.

Substitution Effective Date has the meaning given to it in Section 13.1 (Substitution).

Substitution Notice has the meaning given to it in Section 12.2 (Substitution Entities and Substitution Proposals).

1.2 Interpretation

Unless the context otherwise clearly requires:

(a) The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined;

(b) Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms;

(c) The words "include", "includes" and "including" shall be deemed to be followed by the phrase "without limitation";

(d) The word "will" shall be construed to have the same meaning and effect as the word "shall";

(e) Any definition of or reference to any agreement, instrument or other document herein shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein);

(f) Any reference herein to any Person, or to any Person in a specified capacity, shall be construed to include such Person's successors and assigns or such Person's successors in such capacity, as the case may be;

(g) The words "herein", "hereof" and "hereunder", and words of similar import, shall be construed to refer to this Direct Agreement in its entirety and not to any particular provision hereof;

(h) All references herein to Sections and Schedules shall be construed to refer to Sections of and Schedules to this Direct Agreement. Any Schedules to this Direct Agreement are an integral part hereof. The provisions of this Direct Agreement shall prevail over the provisions of any Schedules to the extent of any inconsistency;

(i) The headings used in this Direct Agreement are for convenience of reference only and are not to affect the construction of or to be taken into consideration in interpreting this Direct Agreement; and

(j) "Winding-up", "liquidation", "dissolution", "insolvency", "adjustment" or "reorganization" of a Person and references to the "liquidator", "assignee", "administrator", "receiver", "custodian", "conservator", "sequestrator" or "trustee" of a Person shall be construed so as to include any equivalent or analogous proceedings or, as the case may be, insolvency representatives or officers under the law of the jurisdiction in which such Person is incorporated, organized or constituted or any jurisdiction in which such Person or, as the case may be, insolvency representative or officer carries on business including the seeking of winding up, liquidation, dissolution, reorganization, administration, arrangement, adjustment or relief of debtors.

2. REPRESENTATIONS AND WARRANTIES

2.1 City represents and warrants that:

(a) ***Organization; Power and Authority***. City is a charter city and municipal corporation duly organized and validly existing under the Constitution of the State of California. City has full power, right and authority to execute and deliver this Direct Agreement and the IF DBF Agreement; and City has full power, right and authority to perform its obligations under the provisions hereof and thereof.

(b) ***Authorizations, Enforceability***. This Direct Agreement and the IF DBF Agreement have been duly authorized by City, and this Direct Agreement and the IF DBF Agreement constitute legal, valid and binding obligations of City,

enforceable against City in accordance with their terms, except as such enforceability may be limited by (i) applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors' rights generally and (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

(c) ***No Default***. As of the date of the execution of this Direct Agreement, there is no City Default. City is not aware of any NPE Default, and there exists no event or condition of which City has Actual Knowledge that would, with the giving of notice or passage of time or both, constitute such a NPE Default or City Default.

2.2 Non-Profit Entity represents and warrants that:

(a) ***Organization; Power and Authority***. Non-Profit Entity is a limited liability company, duly organized and validly existing under the laws of the State of Delaware and has the requisite power and all required licenses to carry on its present and proposed activities, and has full power, right and authority to execute and deliver this Direct Agreement and the IF DBF Agreement; and Non-Profit Entity has the power and authority to perform the provisions hereof and thereof.

(b) ***Authorizations, Enforceability***. This Direct Agreement and the IF DBF Agreement have been duly authorized by Non-Profit Entity, and this Direct Agreement and the IF DBF Agreement constitute legal, valid, and binding obligations of Non-Profit Entity, enforceable against Non-Profit Entity in accordance with their terms, except as such enforceability may be limited by (i) applicable bankruptcy, insolvency, reorganization, moratorium, or other similar laws affecting the enforcement of creditors' rights generally; and (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law).

2.3 The Collateral Agent represents and warrants that:

(a) ***Organization; Power and Authority***. The Collateral Agent is a national banking association duly organized and validly existing under the laws of the United States of America and has the requisite power and all required licenses to carry on its present and proposed activities, and has full power, right and authority to execute and deliver this Direct Agreement and to perform each and all of the obligations of the Collateral Agent provided for under this Direct Agreement.

(b) ***Authorizations, Enforceability***. This Direct Agreement has been duly authorized by the Collateral Agent, and this Direct Agreement constitutes a legal, valid and binding obligation of the Collateral Agent, enforceable against the Collateral Agent in accordance with its terms, except as such enforceability may be limited by (i) applicable bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the enforcement of creditors' rights generally and (ii) general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law). The Collateral Agent is duly authorized by the Lenders to enter into this Direct Agreement on behalf of the Lenders and to validly bind the Lenders to the terms and conditions hereof.

3. CONDITIONS AND LIMITATIONS RESPECTING LENDERS' RIGHTS

3.1 No Lender shall be entitled to the rights, benefits and protections of this Direct Agreement unless and until City has received a copy (certified as true and correct by the Collateral Agent) of the Financing Agreements and Security Documents bearing, if applicable, the date and instrument number or book and page of recordation or filing thereof, including a copy of a specimen bond, note or other obligation (certified as true and correct by the Collateral Agent) secured by such Security Document, together with written notice of the address of the Collateral Agent to which notices may be sent. In the event of an assignment of any such Financing Agreement (excluding any instrument described under subsection (b) of the definition of Financing Agreement) or Security Document, such assignment shall not be subject to the terms of this Direct Agreement unless and until City has received prior written notice and a certified copy thereof, which copy shall, if required to be recorded, bear the date and instrument number or book and page of recordation thereof, together with written notice of the assignee thereof to which notices may be sent. In the event of any change in the identity of the Collateral Agent, such change shall not be binding upon City unless and until City has received a written notice thereof signed by the replaced and substitute Collateral Agent and setting forth the address of the substitute Collateral Agent to which notices may be sent.

3.2 Neither the Collateral Agent nor the Lenders shall exercise any right it may have pursuant to any Financing Documents to assign, transfer or otherwise dispose of any right, title or interest it may have in, or obligations it may have pursuant to, the Financing Documents to the extent the exercise of such rights would constitute a Refinancing and Non-Profit Entity has failed to comply with the requirements of Section 4.4 (Refinancing) of the IF DBF Agreement.

3.3 No Security Document or other instrument purporting to mortgage, pledge, encumber, or create a lien, charge or security interest on or against NPE's Interest shall extend to or affect the fee simple interest of City in the Project or the Site or improvements thereto or City's rights or interests under the Contract Documents.

3.4 City shall not have any obligation to any Lender pursuant to the IF DBF Agreement, except for the express obligations to Lenders set forth in this Direct Agreement or any other instrument or agreement signed by City in favor of such Lender or Collateral Agent, provided that the Collateral Agent has notified City of the existence of its Security Documents.

3.5 Each Financing Agreement and Security Document shall require that the Collateral Agent deliver to City, concurrently with delivery to Non-Profit Entity or any other Person, any notice of default or notice of election or enforcement of remedies, including an election to sell or foreclose, notice of sale or foreclosure or other notice required by Law or by the Security Document in connection with the exercise of remedies under the Financing Agreement or Security Document.

4. AGREEMENTS, CONSENT TO SECURITY AND SUBORDINATION OF SECURITY

4.1 City acknowledges notice and receipt of copies of the Initial Financing Documents and Initial Security Documents. Notwithstanding anything in the IF DBF Agreement to the contrary, but subject to Section 3 (Conditions and Limitations Respecting Lenders' Rights), City:

(a) consents to (i) the assignment by Non-Profit Entity to the Collateral Agent of all of NPE's Interest, (ii) the granting by each Equity Member to the Collateral Agent of a security interest in such Equity Member's equity interest in Non-Profit Entity and in PPC, and (iii) the assignment by PPC to the Collateral Agent of all of the PPC's interest in the Project Implementation Agreement, in each case pursuant to the terms and provisions of the applicable Initial Security Documents; and

(b) agrees that such collateral assignment and grant of security interests in and first lien over all of the NPE's Interest and the PPC's interest in the Project Implementation Agreement pursuant to the Initial Security Documents and the grant of the security interest by each Equity Member in its equity interests in Non-Profit Entity or PPC pursuant to such Security Documents, and the execution by Non-Profit Entity and City of this Direct Agreement and the performance of their respective obligations hereunder, in each case, does not (i) constitute a NPE Default or any other breach by Non-Profit Entity of the Contract Documents, (ii) with the giving of notice or lapse of time, or both, constitute a NPE Default or any other breach by Non-Profit Entity of the IF DBF Agreement, or (iii) require the consent of City except as provided herein.

4.2 Except as expressly contemplated in the IF DBF Agreement as of the Effective Date thereof, while any Security Document is in effect, no agreement between City and Non-Profit Entity for the modification or amendment of the IF DBF Agreement that in any way could reasonably be expected to have a material adverse effect on the rights or interests of the Lender(s) shall be binding on the Lender(s) under such Security Document without the Collateral Agent's consent.

4.3 As long as any Project Debt secured by any Security Document shall remain outstanding, City shall promptly provide the Collateral Agent with a copy of any notice it sends to Non-Profit Entity concerning an actual or potential NPE Default.

4.4 Except as set forth in this Direct Agreement, City shall not be precluded from or delayed in exercising any remedies, including termination of the IF DBF Agreement and City's rights to cure NPE Default at Non-Profit Entity's expense; provided, however, City shall not be entitled to exercise its right of termination for failure to cure a Persistent NPE Default owing to Noncompliance Points accumulated prior to such Step-in Period.

4.5 Neither City nor any officer, employee, agent or representative of City shall have any liability whatsoever for payment of the principal sum of any Project Debt, any other obligations issued or incurred by Non-Profit Entity or a NPE-Related Entity in connection with the IF DBF Agreement or the Project, or any interest accrued thereon or any other sum secured by or accruing under any Financing Document. Except for a violation by City of its express obligations to Lenders under this Direct Agreement, no Lender is entitled to seek any damages or other amounts from City, whether for Project Debt or any other amount. City's review of any Financing Documents or other Project financing documents is not a guarantee or endorsement of the Project Debt, any other obligations issued or incurred by Non-Profit Entity or a NPE-Related Entity in connection with the IF DBF Agreement or the Project, and is not a representation, warranty or other assurance as to the ability of Non-Profit Entity or a NPE-Related Entity to perform its obligations with respect to the Project Debt or any other obligations issued or incurred by Non-Profit Entity or a NPE-Related Entity in connection with the IF DBF Agreement or the Project, or as to the adequacy of the Payments to provide for payment of the Project Debt or any other obligations issued or incurred by Non-Profit

Entity in connection with the IF DBF Agreement or the Project. The foregoing does not affect City's liability to Non-Profit Entity under Article 17 (Termination) of the IF DBF Agreement for Termination Compensation that is measured in whole or in part by outstanding Project Debt.

4.6 The Collateral Agent consents to the grant of security by Non-Profit Entity to City of a first priority security interest in each Allowance Account.

5. CITY NOTICE OF TERMINATION AND EXERCISE OF REMEDIES; LENDER NOTICE OF INTENT

5.1 City shall give the Collateral Agent written notice (a "**City Notice**"):

(a) promptly upon obtaining Actual Knowledge of the occurrence of any event giving rise to a NPE Default, City's right to terminate or give notice terminating the IF DBF Agreement pursuant to Section 17.3.1 (NPE Defaults Triggering City Termination Rights) of the IF DBF Agreement, or exercise any rights under Sections 16.2.4 (Remedies for Failure to Meet Safety Standards or Perform Safety Compliance), 16.2.5 (City Step-in Rights) or 16.2.7.1 of the IF DBF Agreement; or

(b) promptly upon obtaining Actual Knowledge of the occurrence of any event giving rise to City's right to suspend its performance (including in connection with any insolvency or bankruptcy proceeding in relation to Non-Profit Entity) under the IF DBF Agreement.

5.2 A City Notice shall specify:

(a) the unperformed obligations of Non-Profit Entity under the IF DBF Agreement and grounds for termination of, or suspension of performance or the other rights all as referred to in Sections 17.3.1 (NPE Defaults Triggering City Termination Rights), 16.2.4 (Remedies for Failure to Meet Safety Standards or Perform Safety Compliance), 16.2.5 (City Step-in Rights) or 16.2.7.1 under the IF DBF Agreement, in detail sufficient to enable the Collateral Agent to assess the scope and amount of any liability of Non-Profit Entity resulting therefrom;

(b) any other unperformed obligations of Non-Profit Entity of which City obtains Actual Knowledge as of the date of such City Notice;

(c) all amounts due and payable by Non-Profit Entity to City under the IF DBF Agreement on or before the date of such City Notice and which remain unpaid at such date and the nature of Non-Profit Entity's obligation to pay such amounts; and

(d) the amount of Non-Profit Entity's payment obligation to City that City reasonably foresees will arise during the applicable Cure Period.

5.3 City shall update its City Notice to reflect unperformed obligations of Non-Profit Entity under the IF DBF Agreement that have been identified or that have arisen and amounts payable by Non-Profit Entity to City that become due, in each case, after the date of the City Notice but prior to the proposed Step-in Date.

5.4 Within 30 days of the date of receipt of the City Notice, the Collateral Agent shall provide City with notice, via written correspondence and email, of the intent of the Lenders' and shall indicate in such notice whether the Lenders' intend to proceed to cure the NPE Default(s) or to exercise step-in rights (a "**Notice of Intent**"). The hardcopy Notice of Intent shall be sent to City via certified or registered mail, return receipt requested.

6. REVENUE ACCOUNT

Subject to the Collateral Agent directing otherwise in accordance with this Direct Agreement, Non-Profit Entity irrevocably directs City to remit all amounts due and owing to Non-Profit Entity under the IF DBF Agreement directly to the Revenue Account.

7. LENDER NOTICE

7.1 The Collateral Agent shall give City notice (a "**Lender Notice**") via written correspondence and email, with a hardcopy and electronic copy to Non-Profit Entity, promptly upon becoming aware of the occurrence of any Default or Event of Default (whether or not a City Notice has been served relating to the same event). The hardcopy Lender Notice shall be sent to City via certified or registered mail, return receipt requested.

7.2 The Collateral Agent shall specify in any Lender Notice the circumstances and nature of the Default or Event of Default to which Lender Notice relates.

7.3 Unless directed otherwise by the Collateral Agent pursuant to Section 7.4, City shall, following receipt of a Lender Notice of the occurrence of any Event of Default and until further notice from the Collateral Agent pursuant to Section 7.8, continue to make any payments required to be made by City to Non-Profit Entity under the IF DBF Agreement, including any payment of any termination sum calculated in accordance with Article 17 (Termination) of the IF DBF Agreement, to the Revenue Account.

7.4 The Collateral Agent may direct City to make the payments described in Section 7.3 to an alternate account designated by the Collateral Agent by providing written notice to City specifying the following information with respect to the account: (a) account details and wiring instructions; and (b) the name, title, mailing address, telephone number, fax number, and email address of the individual responsible for administering the account. City shall have no liability, whatsoever, for any delay in processing any payment request pursuant to this Section 7.4, provided that such delay does not extend 20 days beyond the date of City's certified, return-receipt or registered mail receipt of the Lender Notice.

7.5 All sums paid as provided in Sections 7.3 and 7.4 shall be deemed paid to Non-Profit Entity under the IF DBF Agreement and shall constitute a complete discharge of City's relevant payment obligations to Non-Profit Entity.

7.6 The Collateral Agent shall promptly notify City via written correspondence and email of any decision to accelerate amounts outstanding under the Financing Documents or to exercise any enforcement remedies under the Financing Documents.

7.7 Neither the Collateral Agent nor the Lender shall exercise any right it may have pursuant to the Security Documents to assign, transfer or otherwise dispose of any right, title or interest it may have in, or obligations it may have pursuant to, the Security Documents to the extent

the exercise of such rights would constitute a Refinancing and Non-Profit Entity has failed to comply with the requirements of Section 4.4 (Refinancing) of the IF DBF Agreement.

7.8 The Collateral Agent shall promptly notify City via written correspondence and email, with a hardcopy and electronic copy to Non-Profit Entity, of a full cure of an Event of Default that is the subject of a Lender Notice.

7.9 Following receipt of a Lender Notice of the occurrence of an Event of Default until delivery of a further notice under Section 7.8 with respect to any full cure of such Event of Default, the Collateral Agent shall have the right to deliver to City a Step-in Notice as provided in Section 9 (Step-in Notice).

8. NO TERMINATION DURING CURE PERIOD

8.1 City agrees not to take any of the following actions prior to the expiration of any applicable Cure Period:

(a) terminate or give notice terminating the IF DBF Agreement or exercise any rights under Sections 10.4 (Letters of Credit), 10.5 (Guarantees), 16.2.4 (Remedies for Failure to Meet Safety Standards or Perform Safety Compliance), 16.2.5 (City Step-in Rights), 16.2.7 (Performance Bond), 16.2.8 (Suspension of Work), 16.2.9 (Other Rights and Remedies) or 17.3.1 (NPE Defaults Triggering City Termination Rights) of the IF DBF Agreement or in respect of the Project Implementation Agreement or D&C Contract;

(b) suspend its performance (including with respect to (i) payments required to be made to Non-Profit Entity to the Revenue Account or to an alternate account designated by the Collateral Agent in accordance with Section 7.4 (Lender Notice), or (ii) any insolvency or bankruptcy proceeding in relation to Non-Profit Entity) under the IF DBF Agreement; and

(c) take or support any action for the liquidation, bankruptcy, administration, receivership, reorganization, dissolution or winding up of Non-Profit Entity or for the composition or readjustment of Non-Profit Entity's debts, or any similar insolvency procedure in relation to Non-Profit Entity, or for the appointment of a receiver, trustee, custodian, sequestrator, conservator, liquidator, administrator or similar official for Non-Profit Entity or for any part of Non-Profit Entity's property;

provided that such agreement of City shall not prevent City from taking actions which are permitted under this Direct Agreement on a Revival Date in respect of any other prior NPE Default or other breach by Non-Profit Entity of the IF DBF Agreement which has occurred and has not been remedied or waived.

8.2 During any Cure Period, without giving a Step-in Notice, the Collateral Agent shall have the right (but shall have no obligation), at its sole option and discretion, to perform or arrange for the performance of any act, duty, or obligation required of Non-Profit Entity under the IF DBF Agreement, or to cure any default of Non-Profit Entity thereunder, which performance by the Collateral Agent shall be accepted by City in lieu of performance by Non-Profit Entity and in satisfaction of Non-Profit Entity's obligations under the IF DBF Agreement. To the extent that any default of Non-Profit Entity under the IF DBF Agreement is cured and/or any

payment liabilities or performance obligations of Non-Profit Entity are performed by the Collateral Agent during the Cure Period, such action shall discharge the relevant liabilities or obligations of Non-Profit Entity to City. Subject to the terms of this Direct Agreement, the Collateral Agent's right to cure any default of Non-Profit Entity as provided in this Section 8.2 may be exercised after the expiration of relevant cure period granted to Non-Profit Entity in Section 16.1.2 (Default Notice and Cure Periods) of the IF DBF Agreement, provided that the cure occurs within the Cure Period. Curing of any NPE Default by the Collateral Agent shall not be construed as an assumption by the Collateral Agent of any obligations, covenants or agreements of Non-Profit Entity under the Contract Documents, except to the extent the Collateral Agent has exercised step-in rights or proposed a Substitute Entity and otherwise as set forth in this Direct Agreement.

9. STEP-IN NOTICE

9.1 Upon the issuance of a City Notice or a Lender Notice of the occurrence of any Event of Default, the Collateral Agent may give a written notice (a "**Step-in Notice**") under this Section 9 (Step-in Notice) to City at any time during the Cure Period in the case of the issuance of a City Notice or at any time following the receipt by City of a Lender Notice, provided that the Event of Default to which Lender Notice relates is continuing.

9.2 The Collateral Agent shall nominate, in the Step-in Notice: (a) the Collateral Agent, a Lender or any of their respective Affiliates; or (b) any Person, subject to approval by City in accordance with Section 12 (Substitution Entities and Substitution Proposals), and the person so nominated being referred to as the "**Step-in Party**."

10. RIGHTS AND OBLIGATIONS ON STEP-IN

10.1 On and from the date of the receipt of the Step-in Notice and the approval of City to the appointment of the Step-in Party if required by Section 9.2 (the "**Step-in Date**") and during the Step-in Period, the Step-in Party shall be:

(a) entitled to exercise and enjoy the rights and powers expressed to be assumed by or granted to Non-Profit Entity under the IF DBF Agreement and this Direct Agreement;

(b) entitled to exercise and enjoy the rights and powers expressed to be assumed by or granted to a Step-in Party under this Direct Agreement; and

(c) liable for the performance of all of Non-Profit Entity's obligations under the IF DBF Agreement and this Direct Agreement arising on or after the Step-in Date.

10.2 Without prejudice to Section 14 (Revival of Remedies), during the Step-in Period, City shall:

(a) not terminate or give notice terminating the IF DBF Agreement or exercise any rights under Sections 10.4 (Letters of Credit), 10.5 (Guarantees), 16.2.4 (Remedies for Failure to Meet Safety Standards or Perform Safety Compliance), 16.2.5 (City Step-in Rights), 16.2.7 (Performance Bond), 16.2.8 (Suspension of Work), 16.2.9 (Other Rights and Remedies), or 17.3.1 (NPE Defaults Triggering City Termination Rights) of the IF DBF Agreement or in respect of the Project Implementation Agreement or D&C Contract, unless the grounds for termination

or giving notice of termination pursuant to Section 17.3.1 (NPE Defaults Triggering City Termination Rights) of the IF DBF Agreement or exercising its rights under the above listed sections of the IF DBF Agreement are failure by the Step-in Party to perform Non-Profit Entity's obligations under the IF DBF Agreement;

(b) not suspend its performance (including in connection with any insolvency or bankruptcy proceeding in relation to Non-Profit Entity) under the IF DBF Agreement, unless the grounds for suspension of performance are failure by the Step-in Party to perform Non-Profit Entity's obligations under the IF DBF Agreement;

(c) not take or support any action for the liquidation, bankruptcy, administration, receivership, reorganization, dissolution or winding up of Non-Profit Entity or for the composition or readjustment of Non-Profit Entity's debts, or any similar insolvency procedure in relation to Non-Profit Entity, or for the appointment of a receiver, trustee, custodian, sequestrator, conservator, liquidator, administrator or similar official for Non-Profit Entity or for any part of Non-Profit Entity's property;

(d) continue to make payments required to be made to Non-Profit Entity under the IF DBF Agreement to the Revenue Account or to an alternate account designated by the Collateral Agent in accordance with Section 7.4 (Lender Notice), so long as the Step-in Party performs Non-Profit Entity's obligations under the IF DBF Agreement; and

(e) endorse or pay over, as directed by the Collateral Agent, any checks received by City with respect to, or funds drawn by City under, the Performance Bond or the D&C Contractor Guaranty; provided that the Collateral Agent reimburses City for any Losses incurred by City in attempting to cure the NPE Default as and to the extent: (i) City is entitled to such reimbursement pursuant to the IF DBF Agreement; (ii) City has promptly notified the Collateral Agent of such Losses at or prior to the time of endorsement or payment and (iii) the Collateral Agent's obligation to reimburse City for such Losses does not exceed the proceeds from any such security.

10.3 City shall owe its obligations under the IF DBF Agreement and this Direct Agreement to Non-Profit Entity and the Step-in Party jointly; provided that:

(a) the receipt of, or performance by City in favor of, either such Step-in Party or Non-Profit Entity shall be a good and effective discharge of City's obligations under this Direct Agreement and the IF DBF Agreement;

(b) the Collateral Agent shall be entitled at any time by notice in writing to City to direct (such direction being binding on the Collateral Agent, City and Non-Profit Entity) that, at all times during the Step-in Period, the Step-in Party shall be solely entitled to make any decisions, to give any directions, approvals or consents, to receive any payments or otherwise to deal with City under the IF DBF Agreement and this Direct Agreement; and

(c) any amount due from Non-Profit Entity to City under the IF DBF Agreement or this Direct Agreement as of the Step-in Date and notified to such Step-in Party prior to the Step-in Date shall be paid to City on the Step-in Date, failing which City shall be entitled to exercise its rights under the IF DBF Agreement in respect of the amount so due and unpaid.

10.4 Non-Profit Entity shall not be relieved from any of its obligations under the IF DBF Agreement or this Direct Agreement, whether arising before or after the Step-in Date, by reason of the Step-in Party exercising the rights provided herein, except to the extent provided in Section 8.2 (No Termination During Cure Period) and Section 11 (Step-out).

11. STEP-OUT

A Step-in Party may, at any time, by giving not less than 30 days' prior written notice ("**Step-out Notice**") to City terminate its obligations to City under this Direct Agreement, in which event such Step-in Party shall be released from all obligations under this Direct Agreement, except for any obligation or liability of the Step-in Party arising during the Step-in Period. The obligations of City to the Step-in Party under this Direct Agreement shall also terminate on the Step-out Date. For the avoidance of doubt, the Step-out Date shall not be earlier than 30 days after the date of the Step-out Notice. Notwithstanding the foregoing, this Direct Agreement shall continue to remain effective according to its terms after the Step-out Date if the Step-in Party is the Collateral Agent or a Lender.

12. SUBSTITUTION ENTITIES AND SUBSTITUTION PROPOSALS

12.1 Any payment to be made or action to be taken by the Collateral Agent as a prerequisite to keeping the IF DBF Agreement in effect shall be deemed properly to have been made or taken by the Collateral Agent if such payment is made or action is taken by a Substituted Entity proposed by the Collateral Agent and reasonably approved by City. City shall have no obligation to recognize any claim to NPE's Interest by any person or entity that has acquired NPE's Interest by, through, or under any Security Document or whose acquisition shall have been derived immediately from any holder thereof, unless such person or entity is a Substituted Entity reasonably approved by City in accordance with this Section 12 (Substitution Entities and Substitution Proposals).

12.2 The Collateral Agent may give a notice ("**Substitution Notice**") under this Section 12 (Substitution Entities and Substitution Proposals) in writing to City at any time:

(a) during any Cure Period;

(b) during any Step-in Period; or

(c) after delivery of a Lender Notice of the occurrence of any Event of Default and prior to delivery by the Collateral Agent to City of a further notice under Section 7.9 (Lender Notice).

12.3 In any Substitution Notice, the Collateral Agent shall notify City that it intends to designate a Substituted Entity.

12.4 The Collateral Agent shall, as soon as practicable, provide to City the information regarding the proposed Substituted Entity and any third party entering into a material

subcontract with such Substituted Entity as required by this Section 12 (Substitution Entities and Substitution Proposals), including:

(a) the name and address of the proposed Substituted Entity;

(b) the names of the proposed Substituted Entity's shareholders or members and the share capital or partnership or membership interests, as the case may be, held by each of them;

(c) the manner in which the proposed Substituted Entity will be financed and the extent to which such financing is committed;

(d) copies of the proposed Substituted Entity's most recent financial statements (and if available such financial statements shall be for the last three financial years) or in the case of a newly-formed special purpose company its opening balance sheet;

(e) a copy of the proposed Substituted Entity's formation documents;

(f) details of the resources available to the proposed Substituted Entity and the proposed Substituted Entity's appropriate qualifications, experience and technical competence available to the proposed Substituted Entity to enable it to perform the obligations of Non-Profit Entity under the IF DBF Agreement;

(g) the names of the proposed Substituted Entity's directors and any key personnel who will have responsibility for the day-to-day management of its participation in the Project;

(h) a rectification plan providing details of the plan to rectify Non-Profit Entity's breaches with respect to the breaches which are capable of being rectified by the Substituted Entity;

(i) such other information, evidence and supporting documentation concerning the identity, financial resources, pre-qualifications, experience and potential conflicts of interest of the proposed Substituted Entity and its contractors as City may reasonably request; and

(j) such evidence of organization, authority, incumbency certificates, certificates regarding debarment or suspension, and other certificates, representations and warranties as City may reasonably request.

12.5 City will approve or disapprove a proposed Substituted Entity within 60 days after it confirms receipt from the Collateral Agent of a request for approval together with the information required under Section 12.4. City will evaluate the financial resources, qualifications, experience and potential conflicts of interest of the proposed Substituted Entity and its contractors using the same standards and criteria that it is then currently applying, or if there is no current application, then the same standards and criteria it most recently applied, to the evaluation of Persons responding to City's requests for qualifications for concession or similar agreements for comparable projects and facilities.

12.6 City shall have no obligation to approve the proposed Substituted Entity:

(a) unless the Collateral Agent demonstrates to City's reasonable satisfaction that: (i) the proposed Substituted Entity and its contractors collectively have the financial resources, qualifications and experience to timely perform Non-Profit Entity's obligations under the Contract Documents and Key Contracts to which Non-Profit Entity is a party; (ii) the proposed Substituted Entity and its contractors, each of their respective direct and indirect beneficial owners, any proposed key personnel, each of their respective officers and directors and each of their respective affiliates have a good and sound background and reputation (including the absence of criminal, civil or regulatory claims or actions against any such Person, and each such Person's adherence to Good Industry Practice, contract terms and applicable standards regarding past or present performance on comparable projects); and (iii) the proposed Substituted Entity and its contractors are in compliance with City's rules, regulations and adopted written policies regarding pre-qualification and organizational conflicts of interest;

(b) if there are unremedied breaches under the IF DBF Agreement and there is no rectification plan reasonably acceptable to City with respect to the breaches which are capable of being rectified by the Substituted Entity; and

(c) if any proposed security interests to be granted by the proposed Substituted Entity to the Collateral Agent and/or the Lender in addition to (or substantially different from) the security interests granted to the Collateral Agent and/or the Lender under the Initial Financing Documents materially and adversely affect the ability of the Substituted Entity to perform Non-Profit Entity's obligations under the Contract Documents or have the effect of increasing any liability of City, whether actual or potential (unless a Rescue Refinancing is concurrently proposed, in which case the Lenders' Liabilities may increase by up to 10%).

12.7 If the City fails to give its approval or disapproval within 60 days of the date on which the City receives the information specified in Section 12.4 in respect of any proposed Substituted Entity, the Collateral Agent shall provide a second notice to City requesting approval or disapproval of the Substituted Entity within five Business Days after City's receipt of such second notice, and if City fails to give its approval or disapproval within such five Business Days, City's approval shall be deemed to have been given.

12.8 The Collateral Agent may request approval of more than one Substituted Entity. The Collateral Agent may request approval at any time or times. Any approval by City of a Substituted Entity shall expire (unless otherwise agreed in writing by City) one year after the approval is issued if the Substituted Entity has not succeeded to NPE's Interest within that period of time. City may revoke an approval if at any time prior to succeeding to NPE's Interest the Substituted Entity ceases to be in compliance with City's rules and regulations regarding organizational conflicts of interest. If the Substituted Entity succeeds to NPE's Interest, then City shall not be entitled to terminate for failure to cure a Persistent NPE Default prior to replacement by the Substituted Entity, provided the Persistent NPE Default is cured by the Substituted Entity as quickly as practicable using commercially reasonable efforts. Once the Persistent NPE Default has been cured, City shall cancel any Noncompliance Points accrued prior to succession.

12.9 Notwithstanding the foregoing, any entity that is wholly owned by a Lender or group of Lenders shall be deemed a Substituted Entity, without necessity for City approval, upon delivery to City of documentation proving that the entity is duly formed, validly existing and

wholly owned by the Lender, including a certificate signed by a duly authorized officer of each Lender in favor of City certifying, representing and warranting such ownership.

13. SUBSTITUTION

13.1 If City approves (or is deemed to have approved) a Substitution Notice pursuant to Section 12 (Substitution Entities and Substitution Proposals), the Substituted Entity named therein shall execute a duly completed Substitute Accession Agreement substantially in the form attached to this Direct Agreement as Schedule A and submit it to City (with a copy thereof to the other parties to this Direct Agreement) and such assignment shall become effective on and from the date on which City countersigns the Substitute Accession Agreement (the "**Substitution Effective Date**") or the date that is 10 Business Days after the date City receives the completed and compliant Substitution Accession Agreement if City fails to sign the Substitution Accession Agreement.

13.2 As of the Substitution Effective Date:

(a) such Substituted Entity shall become a party to the IF DBF Agreement and this Direct Agreement in place of Non-Profit Entity who shall be immediately released from its obligations arising under, and cease to be a party to, the IF DBF Agreement and this Direct Agreement from and after Substitution Effective Date;

(b) all of Non-Profit Entity's obligations and liabilities under the IF DBF Agreement and under this Direct Agreement arising from and after the Substitution Effective Date shall be immediately and automatically transferred to the Substituted Entity;

(c) such Substituted Entity shall exercise and enjoy the rights and perform the obligations of Non-Profit Entity under the IF DBF Agreement and this Direct Agreement; and

(d) City shall owe its obligations (including any undischarged liability with respect to any loss or damage suffered or incurred by Non-Profit Entity prior to the Substitution Effective Date) under the IF DBF Agreement and this Direct Agreement to such Substituted Entity in place of Non-Profit Entity, subject to City's right to offset any losses or damages suffered or incurred by City as provided under the IF DBF Agreement and this Direct Agreement.

13.3 City shall use its reasonable efforts to facilitate the transfer to the Substituted Entity of Non-Profit Entity's obligations under the IF DBF Agreement and this Direct Agreement.

13.4 The Substituted Entity shall pay to City on the Substitution Effective Date any amount due to City under the IF DBF Agreement and this Direct Agreement, including City's reasonable costs and expenses incurred in connection with (a) Non-Profit Entity's default and termination, (b) City's activities with respect to the Project during any period City was in possession of the Project, and (c) the approval of the Substituted Entity, all as of the Substitution Effective Date and notified to such Substituted Entity prior to the Substitution Effective Date. City's receipt of the payment pursuant to this Section 13.4 shall be a condition precedent to the Substitution Effective Date.

13.5 As of the Substitution Effective Date:

(a) any right of termination suspended by virtue of Section 8.1 (No Termination During Cure Period) shall be of no further effect and City shall not be entitled to terminate or suspend performance of the IF DBF Agreement and this Direct Agreement by virtue of any act, omission or circumstance that occurred prior to such Substitution Effective Date; and

(b) City shall enter into an equivalent direct agreement on substantially the same terms as this Direct Agreement, save that Non-Profit Entity shall be replaced as a party by the Substituted Entity.

14. REVIVAL OF REMEDIES

14.1 If a City Notice has been given, the grounds for that notice are continuing and have not been remedied or waived and:

(a) as of the end of the Cure Period, no Step-in Notice has been given and no Substituted Entity becomes a party to the IF DBF Agreement and this Direct Agreement; or

(b) the Step-in Period ends without a Substituted Entity becoming a party thereto,

then, from and after the date such Cure Period or such Step-in Period, as the case may be, expires (the "**Revival Date**"), City shall be entitled to:

(i) act upon any and all grounds for termination or suspension available to it in relation to the IF DBF Agreement in respect of defaults under the IF DBF Agreement not remedied or waived;

(ii) pursue any and all claims and exercise any and all remedies against Non-Profit Entity; and

(iii) if and to the extent that it is then entitled to do so under the IF DBF Agreement, take or support any action of the type referred to in Section 16.2 (City Remedies for NPE Default) of the IF DBF Agreement.

15. NEW PROJECT AGREEMENT

15.1 If:

(a) the IF DBF Agreement is rejected by a trustee or debtor-in-possession in, or terminated as a result of, any bankruptcy or insolvency proceeding involving Non-Profit Entity, or

(b) a NPE Default under Section 16.1.1(m) of the IF DBF Agreement occurs,

and, within 120 days after such rejection or termination or NPE Default, the Collateral Agent requests that the City execute a new project agreement and certifies in writing to City that it or the Collateral Agent's permitted designee or assignee (including a Substituted Entity) intends to perform the obligations of Non-Profit Entity as and to the extent required under the IF DBF Agreement, then City will execute and deliver to the Collateral Agent (or any Substituted Entity satisfying the requirements of this Direct

Agreement if directed to do so by the Collateral Agent) a new project agreement. Such new project agreement shall contain conditions, agreements, terms, provisions and limitations which are the same as those of the IF DBF Agreement, except for any obligations that have been fulfilled by Non-Profit Entity, any party acting on behalf of or stepping-in for Non-Profit Entity or City prior to such rejection or termination. References in this Direct Agreement to the "Agreement" shall be deemed also to refer to any such new project agreement.

16. RECEIVERS

16.1 The appointment of a receiver at the behest of Non-Profit Entity shall be subject to City's prior written approval in its sole discretion. The appointment of a receiver at the behest of any Lender shall be subject to the following terms and conditions:

(a) City's prior approval shall not be required for the appointment of the receiver or the selection of the Person to serve as receiver;

(b) whenever any Lender commences any proceeding for the appointment of a receiver, the Collateral Agent shall serve on City not less than ten (10) days' prior written notice of the hearing for appointment and of the Lender's pleadings and briefs in the proceeding;

(c) City may appear in any such proceeding to challenge the selection of the Person to serve as receiver, but waives any other right to oppose the appointment of the receiver; and

(d) City may at any time seek an order for replacement of the receiver by a different receiver.

16.2 No receiver appointed at the behest of Non-Profit Entity or any Lender shall have any power or authority to replace PPC or D&C Contractor except by reason of default or unless the replacement is a Substituted Entity reasonably approved or deemed approved by City.

17. ESTOPPEL CERTIFICATES

17.1 At any time and from time to time, within 30 days after written request of any Lender or proposed Lender, City, without charge, shall certify by written instrument duly executed and acknowledged, to any Lender or proposed Lender as follows:

(a) as to whether the IF DBF Agreement has been supplemented or amended, and if so, attaching a copy of such supplement or amendment to such certificate;

(b) as to the validity and force and effect of the IF DBF Agreement against City, in accordance with its terms, subject to applicable bankruptcy, insolvency and similar laws affecting the enforceability of creditors' rights generally and the general principles of equity;

(c) as to the existence of any NPE Default of which City has Actual Knowledge;

(d) as to the existence of events which, by the passage of time or notice or both, would constitute a NPE Default, to City's Actual Knowledge;

(e) as to the then accumulated amount of Noncompliance Points;

(f) as to the existence of any Claims by City regarding the IF DBF Agreement; and

(g) as to the Effective Date and the expiration date of the Term.

17.2 City shall deliver the same certified, written instrument to a Substituted Entity or proposed Substituted Entity within fifteen (15) days after receiving its written request, provided that the request is delivered to City either before the proposed Substituted Entity succeeds to NPE's Interest or within sixty (60) days after the Substituted Entity has succeeded to NPE's Interest.

17.3 Any such certificate may be relied upon by, and only by, the Lender, proposed Lender, Substituted Entity or proposed Substituted Entity to whom the same may be delivered, and the contents of such certificate shall be binding on City.

18. SUBSTITUTED PPC ENTITY

18.1 Notwithstanding anything in the IF DBF Agreement to the contrary, including Section 9.3.1.4 of the IF DBF Agreement, but subject to this Article 18, the Collateral Agent shall be permitted to assign and transfer the Project Implementation Agreement to a Substituted PPC Entity pursuant to an enforcement of the Security Documents, and any such transfer shall not be a breach or NPE Default under the IF DBF Agreement.

18.2 Prior to any replacement of the PPC, the Collateral Agent must provide to City information regarding the proposed Substituted PPC Entity and any third party entering into a material subcontract with such Substituted PPC Entity, including:

(a) the name and address of the proposed Substituted PPC Entity;

(b) the names of the proposed Substituted PPC Entity's shareholders or members and the share capital or partnership or membership interests, as the case may be, held by each of them;

(c) the manner in which the proposed Substituted PPC Entity will be financed and the extent to which such financing is committed;

(d) copies of the proposed Substituted PPC Entity's most recent financial statements (and if available, such financial statements shall be for the last three financial years) or in the case of a newly-formed special purpose company, its opening balance sheet;

(e) a copy of the proposed Substituted PPC Entity's formation documents;

(f) details of the resources available to the proposed Substituted PPC Entity, and the proposed Substituted PPC Entity's appropriate qualifications, experience, and technical competence available to the proposed Substituted PPC Entity to enable it to perform the obligations of PPC under the Project Implementation Agreement;

(g) the names of the proposed Substituted PPC Entity's directors and any key personnel who will have responsibility for the day-to-day management of its participation in the Project;

(h) a rectification plan providing details of the plan to rectify Non-Profit Entity's breaches with respect to the breaches which are capable of being rectified by the Substituted PPC Entity;

(i) such other information, evidence, and supporting documentation concerning the identity, financial resources, pre-qualifications, experience, and potential conflicts of interest of the proposed Substituted PPC Entity and its contractors as City may reasonably request; and

(j) such evidence of organization, authority, incumbency certificates, certificates regarding debarment or suspension, and other certificates, representations, and warranties as City may reasonably request.

18.3 City will approve or disapprove a proposed Substituted PPC Entity within 60 days after receipt from the Collateral Agent of the information required under Section 18.2. City will evaluate the financial resources, qualifications, experience, and potential conflicts of interest of the proposed Substituted PPC Entity and its contractors using the same standards and criteria that it is then currently applying, or if there is no current application, then the same standards and criteria it most recently applied, to the evaluation of Persons responding to City's requests for qualifications for concession or similar agreements for comparable projects and facilities. If the City fails to give its approval or disapproval within 60 days of the date on which City has received the information specified in Section 18.2 in respect of any proposed Substituted PPC Entity, the Collateral Agent shall provide a second notice to City requesting approval or disapproval of the Substituted PPC Entity within five Business Days after City's receipt of such second notice, and if City fails to give its approval or disapproval within such five Business Days, City's approval shall be deemed to have been given.

18.4 City shall have no obligation to approve the proposed Substituted PPC Entity:

(a) unless the Collateral Agent demonstrates to City's reasonable satisfaction that: (i) the proposed Substituted PPC Entity and its contractors collectively have the financial resources, qualifications and experience to timely perform PPC's obligations under the Project Implementation Agreement and Key Contracts to which PPC is a party; (ii) the proposed Substituted PPC Entity and its contractors, each of their respective direct and indirect beneficial owners, any proposed key personnel, each of their respective officers and directors and each of their respective affiliates have a good and sound background and reputation (including the absence of criminal, civil or regulatory claims or actions against any such Person, and each such Person's adherence to Good Industry Practice, contract terms and applicable standards regarding past or present performance on comparable projects); and (iii) the proposed Substituted PPC Entity and its contractors are in compliance with City's rules, regulations and adopted written policies regarding pre-qualification and organizational conflicts of interest; and

(b) if any proposed security interests to be granted by the proposed Substituted PPC Entity to the Collateral Agent and/or the Lender in addition to (or substantially different from) the security interests granted to the Collateral Agent and/or the

Lender under the Initial Financing Documents materially and adversely affect the ability of the Substituted PPC Entity to perform PPC's obligations under the Project Implementation Agreement or has the effect of increasing any liability of City, whether actual or potential (unless a Rescue Refinancing is concurrently proposed, in which case the Lenders' Liabilities may increase by up to 10%).

19. GENERAL

19.1 Neither the Lender nor the Collateral Agent shall have any obligation hereunder to extend credit to City or any contractor to City at any time, for any purpose.

19.2 For so long as any amount under the Financing Documents is outstanding, City shall not, without the prior written consent of the Collateral Agent, consent to any assignment, transfer, pledge or hypothecation of the IF DBF Agreement or any interest therein by Non-Profit Entity, other than as specified in the IF DBF Agreement or this Direct Agreement.

20. TERMINATION

This Direct Agreement shall remain in effect until the earlier to occur of (a) the Discharge Date; (b) the time at which all of City's obligations and liabilities have expired or have been satisfied in accordance with the terms of the IF DBF Agreement and this Direct Agreement; and (c) any assignment to a Substituted Entity has occurred under Section 13 (Substitution) and City shall have entered into an equivalent direct agreement on substantially the same terms as this Direct Agreement, save that Non-Profit Entity has been replaced as a party by the Substituted Entity.

21. EFFECT OF BREACH

Without prejudice to any rights a party may otherwise have, a breach of this Direct Agreement shall not of itself give rise to a right to terminate the IF DBF Agreement.

22. NO PARTNERSHIP

Nothing contained in this Direct Agreement shall be deemed to constitute a partnership between the parties to this Direct Agreement. None of the parties shall hold itself out contrary to the terms of this Section 22 (No Partnership).

23. REMEDIES CUMULATIVE; NO WAIVER

No failure or delay by City, the Lenders or the Collateral Agent (or their designee) in exercising any right or power hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any such right or power, or any abandonment or discontinuance of steps to enforce such a right or power, preclude any other or further exercise thereof or the exercise of any other right or power. The remedies provided herein are cumulative and not exclusive of any remedies provided by law and may be exercised by the Lenders, the Collateral Agent or any designee, transferee or assignee thereof from time to time. In no event shall any provision of this Direct Agreement or any consent to any departure by any party therefrom be effective unless such waiver is permitted by Section 24 (Amendment), and then such waiver or consent shall be effective only in the specific instance and for the purpose for which given.

24. AMENDMENT

No amendment, modification or waiver of any provision of this Direct Agreement, or consent to any departure herefrom by any party to this Direct Agreement, shall be effective against any party to this Direct Agreement unless the same shall be in writing and signed by the party against whom enforcement is sought, and then such amendment or waiver shall be effective only in the specific instance and for the specific purpose for which it was given.

25. SUCCESSORS AND ASSIGNS

25.1 No party to this Direct Agreement may assign or transfer any part of its rights or obligations hereunder without the consent of the other parties, save that the Collateral Agent may assign or transfer its rights and obligations hereunder to a successor Collateral Agent in accordance with the Financing Documents. In connection with any such assignment or transfer, City agrees to enter into a new Direct Agreement with the successor Collateral Agent on terms that are substantially the same as those of this Direct Agreement.

25.2 This Direct Agreement shall be binding upon and inure to the benefit of the parties to this Direct Agreement and their respective successors and permitted assigns.

26. COUNTERPARTS

This Direct Agreement may be executed in any number of counterparts, each of which shall be identical and all of which, taken together, shall constitute one and the same instrument, and the parties may execute this Direct Agreement by signing any such counterpart. Transmission by facsimile or electronic mail of an executed counterpart of this Direct Agreement shall be deemed to constitute due and sufficient delivery of such counterpart, to be followed thereafter by an original of such counterpart. The Parties, in the manner specified by City, may sign this Direct Agreement electronically.

27. SEVERABILITY

If, at any time, any provision of this Direct Agreement is or becomes illegal, invalid or unenforceable in any respect under any law of any jurisdiction, neither the legality, validity or enforceability of the remaining provisions nor the legality, validity or enforceability of such provision under the law of any other jurisdiction will in any way be affected or impaired.

28. NOTICES

28.1 Any notice, approval, election, demand, direction, consent, designation, request, agreement, instrument, certificate, report or other communication required or permitted to be given or made under this Direct Agreement (each, a notice) to a party must be given via written correspondence and email. All notices will be validly given if given on a Business Day to each party at the following address:

To City:	San Francisco Municipal Transportation Agency 1 South Van Ness, 8th Floor San Francisco, CA 94103 Attn: Chris Lazaro Email: Chris.Lazaro@sfmta.com
with copies to:	Office of the City Attorney City Hall, Room 234 1 Dr. Carlton B. Goodlett Place San Francisco, California 94102-4682 Attn: Real Estate & Finance Group Re: Potrero Yard Modernization Project Email: isidro.jimenez@sfcityatty.org
To Non-Profit Entity:	PRG – Potrero Properties LLC c/o Provident Resources Group Inc. 5565 Bankers Avenue Baton Rouge, LA 70808 President and Chief Executive Officer Telephone: 225-766-3977 E-mail: _____
To the Collateral Agent:	U.S. Bank Trust Company, National Association 1 California Street, Suite 1000 San Francisco, CA 94111 Attention: Ty Jordan email: ty.jordan@usbank.com

28.2 A notice shall be deemed to have been given on the earliest of:

(a) date of receipt, if delivered in person;

(b) date of receipt (confirmed by automatic answer back or equivalent evidence of receipt), if validly transmitted electronically before 3:00 p.m. (local time at the place of receipt) on a Business Day;

(c) one Business Day after delivery to the courier properly addressed, if delivered by overnight courier; and

(d) four Business Days after deposit with postage prepaid and properly addressed, if delivered by United States certified or registered mail.

28.3 Each of the parties will notify each other via written correspondence and email of any change of address, such notification to become effective 15 days after notification.

28.4 Non-Profit Entity has provided an email address for Notices and other communications as set forth in this Section 28 (Notices) and represents and warrants that Principal Project Company has full, concurrent and complete access to all Notices and communications sent to

such email address. Notices and communications sent by City to such email address shall be considered to be immediately delivered to both Non-Profit Entity and Principal Project Company for all purposes under the Contract Documents and Project Implementation Agreement.

29. GOVERNING LAW AND JURISDICTION

29.1 The venue for any litigation arising out of, relating to or resulting from any matter relating to this Direct Agreement shall be in San Francisco, California to the extent that a court located in San Francisco has subject matter jurisdiction.

29.2 This Direct Agreement shall be governed by and construed in accordance with the laws of the State of California, any applicable federal law, the San Francisco City Charter and Municipal Code, and the ordinances, regulations, codes, and Executive Orders enacted and/or promulgated pursuant thereto.

29.3 Each of Non-Profit Entity, City and the Collateral Agent irrevocably consents to service of process by personal delivery, certified mail, postage prepaid or overnight courier. Nothing in this Direct Agreement will affect the right of any party to serve process in any other manner permitted by law.

29.4 Each of City, Non-Profit Entity and the Collateral Agent (a) certifies that no representative, agent or attorney of another party has represented, expressly or otherwise, that such party would not, in the event of a proceeding, seek to enforce the mutual waivers in this Section 29 (Governing Law and Jurisdiction) and (b) acknowledges that it has been induced to sign, or change its position in reliance upon the benefits of, this Direct Agreement by, among other things, the mutual waivers and certifications in this Section 29 (Governing Law and Jurisdiction).

30. CONFLICT WITH PROJECT AGREEMENT

In the event of any conflict or inconsistency between the provisions of this Direct Agreement and the IF DBF Agreement, the provisions of this Direct Agreement shall prevail.

IN WITNESS WHEREOF, each of the parties to this Direct Agreement has caused this Direct Agreement to be duly executed by its duly authorized officer as of the date first written above.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

U.S. BANK TRUST COMPNY, N.A.,
a national banking association,
as Trustee or Collateral Agent

By:_____
Name:_____
Title:_____

PRG – POTRERO PROPERTIES, LLC,
a Delaware limited liability company

By: Provident Resources Group Inc.,
a Georgia non-profit corporation,
its sole member

By: _____
Name: Chris Hicks
Title President and Chief Executive Officer

CITY AND COUNTY OF SAN FRANCISCO

By:_____
Name:_____
Title: Director of Transportation

Approved as to Form
David Chiu, City Attorney

Date:_____

By:_____
Isdiro Jimenez
Deputy City Attorney

Attest:

By:_____
Secretary (Signature)

Print Name:_____

[SEAL]

SCHEDULE A
Form of Substitute Accession Agreement

[Date]

To: City and County of San Francisco
San Franisco Municipal Transportation Agency
1 South Van Ness Avenue
San Francisco, CA 94103
For the attention of: Chief Financial Officer and City Attorney

[Lender and other parties to Financing Agreements to be listed]
[insert address]
For the attention of: [_____]

From: *[Substituted Entity]*

POTRERO YARD MODERNIZATION PROJECT: INFRASTRUCTURE FACILITY SUBSTITUTE ACCESSION AGREEMENT

Ladies and Gentlemen:

Reference is made to the Project Agreement, dated as of [_____], 2026 (as amended, amended and restated, supplemented or otherwise modified from time to time, the "***IF DBF Agreement***") between the City and County of San Francisco ("***City***"), a municipal corporation, acting by order of and through the San Francisco Municipal Transportation Agency, and PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code"), and the Direct Agreement, dated as of [_____], 2026 (as amended, amended and restated, supplemented or otherwise modified from time to time, the "***Direct Agreement***") among City, Non-Profit Entity and U.S. Bank Trust Company, National Association, as Collateral Agent. Terms defined in the Direct Agreement and not otherwise defined herein have the respective meanings set forth in or incorporated into in the Direct Agreement.

1. We confirm that we are a Substituted Entity pursuant to Section 13 (Substitution) of the Direct Agreement.

2. We acknowledge and agree that, upon and by reason of our execution of this Substitute Accession Agreement, we will become a party to the IF DBF Agreement and the Direct Agreement as a Substituted Entity and, accordingly, shall have the rights, powers and obligations of Non-Profit Entity under the IF DBF Agreement and the Direct Agreement.

3. Our address, telephone number and address for electronic mail for the purpose of receiving notices are as follows:

[*Contact details of Substituted Entity*]

4. This Substitute Accession Agreement is subject to and shall be construed and interpreted in accordance with the laws of the State of California, any applicable federal law, the San Francisco City Charter and Municipal Code, and the ordinances, regulations, codes, and Executive Orders enacted and/or promulgated pursuant thereto.

The terms set forth herein are agreed to:

[Substituted Entity]

By:_____
Name: _____
Title:_____

Agreed for and on behalf of:

CITY AND COUNTY OF SAN FRANCISCO

By:_____
Name:_____
Title: Director of Transportation

Approved as to Form
[_____], City Attorney

Date:_____

By:_____
[_____]
Deputy City Attorney

Attest:

By:_____
Secretary (Signature)

Print Name:_____

[SEAL]

EXHIBIT 5C

INTENTIONALLY OMITTED

EXHIBIT 5D

FORM OF OPINION FROM CITY'S LEGAL COUNSEL

[***City Attorney's Office Letterhead***]

PRG – Potrero Properties LLC
c/o Provident Resources Group Inc.
5565 Bankers Avenue
Baton Rouge, LA 70808

U.S. Bank Trust Company, National Association, as Collateral Agent
1 California Street, Suite 1000
San Francisco, CA 94111

____, 2026

Ladies and Gentlemen:

I am a Deputy City Attorney assigned to provide counsel to the City and County of San Francisco ("**City**"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), and as such have advised City in connection with its execution of:

(i) the Infrastructure Facility Project Agreement for the Potrero Yard Modernization Project dated as of [_____], 2026 by and between the City and PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code; and

(ii) the Direct Agreement dated as of [_____], 2026 by and between the City, the Non-Profit Entity and U.S. Bank Trust Company, National Association, the collateral agent for the Lenders.

The agreements in clauses (i) – (ii) are collectively referred to hereinafter as the "**City Agreements**".

We have examined executed originals or copies identified to our satisfaction of each of the City Agreements. We have further examined such other documents, certificates and other materials as we have deemed necessary in order to render the opinions expressed herein.

With respect to the various factual matters material to my opinion, we have relied upon certificates and representations of the City and other public officials. We have assumed the due execution and delivery, pursuant to due authorization of the City Agreements by parties other than the City, the validity and binding effect thereof as to such other parties and the genuineness of all signatures (other than those of the City) on all documents seen or reviewed by us, the authenticity of all documents submitted to us as originals and the conformity with the original documents of all documents submitted to us as copies.

Whenever an opinion expressed herein is stated to be to my knowledge, or known to me, it means that, during the course of my representation of the City, I have not acquired information

giving me actual knowledge of the existence or absence of the facts forming the basis for such opinion, and that, except to the extent expressly set forth herein I have not conducted an independent investigation to determine the existence or absence of such facts.

Based on the foregoing, I am of the opinion that:

1. Ordinance No. 38-21, adopted by the Board of Supervisors on March 16, 2021, has been duly enacted and is in full force and effect.

2. The City and County of San Francisco is a charter city and municipal corporation duly organized and validly existing under the Constitution of the State of California.

3. The City is duly organized and operating pursuant to the San Francisco Charter and has the full legal capacity, right, power and authority to enter into and deliver the City Agreements. The City has the full legal capacity, right, power and authority to carry out and perform its obligations under the City Agreements.

4. Each of the City Agreements has been duly authorized, executed and delivered by the City, and such documents are legal, valid and binding instruments of the City and are enforceable against the City in accordance with their terms, except as enforceability may be limited or otherwise affected by (a) bankruptcy, insolvency, reorganization, moratorium and other laws affecting the rights of creditors generally, (b) principles of equity, whether considered at law or in equity, (c) the sovereign immunity of the City; provided that sovereign immunity shall not bar the enforcement of claims presented in accordance with the provisions of the applicable City Agreement, City Charter and Administrative Codes and California law, so long as such claims are based on contractual rights, and (d) the limitations and conditions set forth herein.

5. The execution and delivery by the City of the City Agreements and the performance of its obligations under the City Agreements are within its powers and do not and will not, in any material way, conflict with, or constitute a breach or result in a violation of (a) any existing constitutional or statutory provision of the State of California, (b) to my knowledge, any existing agreement or other instrument to which the City is a party or by which it is bound, or (c) to my knowledge, any existing order, rule, regulation, judgment, decree ordinance of any court, government or governmental authority having jurisdiction over the City as applicable or its properties.

6. To my knowledge, all official action required to be taken by the City and all consents, approvals, authorizations or orders of or filings with or notice to, any governmental or regulatory authority necessary to authorize and enable the City to execute and deliver the City Agreements or to authorize and enable City to perform its obligations thereunder (other than acts under the City Agreements that may be taken by City in the future) have been taken and obtained.

The opinions expressed in this letter are limited to the opinions expressly stated, and no other opinions should be inferred. The opinions are expressed only as of the date hereof.

Sincerely,

[*Insert Signature*]

EXHIBIT 5E

FORM OF OPINION FROM NON-PROFIT ENTITY'S LEGAL COUNSEL

[***Insert Firm Letterhead***]

San Francisco Municipal Transportation Agency
1 South Van Ness, 8th Floor
San Francisco, CA 94103
Attn: Chris Lazaro
U.S. Bank Trust Company, National Association, as Collateral Agent
1 California Street, Suite 1000
San Francisco, CA 94111

____, 2026

Ladies and Gentlemen:

We [_____] ("**Firm**") have acted as special [California] counsel to PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code in connection with the Infrastructure Facility Project Agreement for the Potrero Yard Modernization Project dated as of [_____], 2026 (the "**Agreement**") between the City and County of San Francisco ("**City**"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), and the Non-Profit Entity (Contract # 1334). This opinion is being furnished pursuant to Section 3.2.4 (Conditions Precedent to Financial Close) of the Agreement. Capitalized terms used herein without definition have the meanings ascribed to such terms in the Agreement.

In connection with the opinions contained herein, we have examined executed counterparts, or copies of such executed counterparts certified or otherwise identified to our satisfaction, of:

(i) the Agreement;

(ii) the Project Implementation Agreement;

(iii) the Direct Agreement, by and between the City, the Non-Profit Entity and the Collateral Agent; and

(iv) the Financing Documents.

[***add other agreements, if necessary***]

Collectively, (i) through (iv) above shall be hereinafter referred to as the "**Transaction Documents**".

We have further examined and relied upon the accuracy of original, certified, conformed, photocopied or telecopied copies of such records, agreements, certificates and other documents as we have deemed necessary or appropriate to enable us to render the opinions expressed herein. In all such examinations we have assumed the genuineness of signatures on original documents and the conformity to such original documents of all copies submitted to us as certified, conformed, photocopied or telecopied copies. We have further assumed that none of such documents has been subsequently rescinded, revoked, restated, modified or amended in any way other than by documents that have been submitted to us. We have made no independent inquiry or investigation of any factual matters or circumstances relevant to the opinions herein set forth, but instead have relied solely upon the accuracy of written statements and representations of officers and other representatives of the Non-Profit Entity, statements, representations and warranties made in the Transaction Documents.

In our examination, we have assumed, without independent investigation, the following:

(i) the Transaction Documents have been duly authorized, executed and delivered by each party thereto (other than the Non-Profit Entity);

(ii) that each party (other than the Non-Profit Entity) to each Transaction Document is duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization, and has full power and authority to enter into and to carry out its obligations under such Transaction Document;

(iii) the authorization, execution and delivery by each party (other than the Non-Profit Entity) of each Transaction Document to which it is a party does not, and such party's performance thereunder will not, breach, conflict with, or constitute a violation of, (A) the organizational documents, bylaws or similar governing documents of such party or (B) any laws or any writ, order, injunction or decree of any court or governmental authority or any provision of any agreement or instrument to which such party or its properties may be bound;

(iv) that each Transaction Document is the legal, valid and binding obligation of each party thereto (other than the Non-Profit Entity) enforceable against such party in accordance with the terms of such Transaction Document;

(v) the legal capacity and competency of all Persons signing the Transaction Documents on behalf of the parties thereto (other than the Non-Profit Entity); and

(vi) that each party to the Transaction Documents (other than the Non-Profit Entity) has all necessary governmental consents, approvals, licenses or permits required in order to execute and deliver the Transaction Documents to which it is a party.

The opinions set forth below that make reference to, or are stated to be qualified by, the expression "to our knowledge" or any expression of similar import are limited to [insert attorneys from relevant law firm] (but not the knowledge of any other attorney of this Firm or any constructive or imputed knowledge of any information, whether by reason of our representation of the Non-Profit

Entity or otherwise). We have not undertaken an independent investigation to determine the accuracy of any such statement, and any limited inquiry undertaken by us during the preparation of this letter should not be regarded as such an investigation.

Based upon the foregoing and our examination of such questions of law as we have deemed necessary or appropriate, and subject to limitations and qualifications set forth below, it is our opinion that:

1. The Non-Profit Entity is a limited liability company validly existing and in good standing under the laws of the State of Delaware and has all requisite limited liability company power to execute and deliver, and to perform its obligations under, the Transaction Documents.

2. Based solely on the Certificate of Good Standing, the Non-Profit Entity is qualified to transact interstate business as a foreign limited liability company in the State of California.

3. The execution and delivery of, and the performance of obligations under, the Transaction Documents by the Non-Profit Entity, have been duly authorized by all necessary action on the part of the Non-Profit Entity. Each person executing such Transaction Documents on the Non-Profit Entity's behalf has been duly authorized to execute and deliver each such document on Non-Profit Entity's behalf, and such Transaction Documents have been duly executed and delivered by the Non-Profit Entity.

4. Each of the Transaction Documents constitutes the legal, valid and binding obligation of the Non-Profit Entity, enforceable against the Non-Profit Entity in accordance with the terms thereof.

5. The execution and delivery by the Non-Profit Entity of the Transaction Documents does not, and the consummation by the Non-Profit Entity of any of the transactions contemplated thereunder will not, result in the violation by Non-Profit Entity of any United States federal statute, rule or regulation, which in our experience is normally applicable with respect to transactions of the type contemplated by the Transaction Documents (without taking into account the particular nature of the business conducted by the parties to the Transaction Documents). The execution and delivery by the Non-Profit Entity of the Transaction Documents does not, and the consummation by it of the transactions contemplated thereunder will not, result in a violation by Non-Profit Entity of any provision of the LLC Agreement (as defined in Annex I) or the Certificate of Formation (as defined in Annex I).

6. The execution and delivery by the Non-Profit Entity of the Transaction Documents and the performance of its obligations under the Transaction Documents are within its powers and do not and will not conflict with, or constitute a breach or result in a violation of (a) any existing constitutional or statutory provision of the State of California, (b) to my knowledge, any existing agreement or other instrument to which Non-Profit Entity is a party or by which it is bound, or (c) to my knowledge, any existing order, rule, regulation, judgment, decree ordinance of any court, government or governmental authority having jurisdiction over Non-Profit Entity as applicable or its properties.

Our opinions are subject to the following additional assumptions, limitations and qualifications: [Note to City: Following its review of the Transaction and Financing Documents – Kutak may require additional California-specific limitations that will need to be included.]

A. Our opinions are subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and to general principles of equity. Without limiting the foregoing qualifications, the opinions expressed herein do not purport to cover, and we express no opinion with respect to, the applicability of Section 548 of the federal Bankruptcy Code or any comparable provision of state law, including the provisions relating to fraudulent conveyances.

B. Indemnities, rights of contribution, exculpatory provisions, provisions in respect of rights to liquidated damages, penalties or punitive damages, waivers of rights and provisions requiring arbitration of disputes may be limited on public policy grounds or may be prohibited by law.

C. Certain of the remedies in the Transaction Documents may be limited or rendered unenforceable by applicable law. In our opinion, however, applicable law does not render the remedies afforded by the Financing Documents inadequate for the practical realization by the Lenders of the principal benefits intended to be provided by the Financing Documents.

D. We express no opinion with respect to any provision of the Transaction Documents that purports to require a prevailing party in a dispute to pay attorney's fees and expenses, or other costs, to a non-prevailing party.

E. We express no opinion as to the enforceability of any agreements in any Transaction Document by the parties thereto to agree in the future upon any matter.

This letter speaks only as of the date hereof, and we disclaim any undertaking to update this letter to take into account any future changes of fact or law. The opinions expressed herein are solely for your benefit, and may not be relied on in any manner or for any purposes by any other Person without our written consent, and are not to be used, circulated, quoted, published or otherwise referred to or disseminated for any other purpose.

Very truly yours,

[*Insert Signature*]

EXHIBIT 5F

BASE CAPITAL APC ADJUSTMENT FOR BASE INTEREST RATE AND CREDIT SPREAD FLUCTUATION

[See attached]

1. POTRERO YARD MODERNIZATION PROJECT

2. APC UPDATE GUIDE

Introduction

The purpose of this guide is to provide further elaboration on the specific process to establish the changed capital portion of the Availability Payment ("**APC**[a]") and establish the Financial Model Update to the Base Case Financial Model as of the Bond Pricing Date, as per the terms of the Project Agreement ("**PA**"). Capitalized terms are as defined in the Project Agreement by and between the City and County of San Francisco ("**City**") acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**") and PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**").

At least three dry runs of the process detailed in this paper will be undertaken in advance of final bond pricing to ensure that all parties are familiar with it.

1. Participants in the APC Update Process

The participants in the APC update process will include representatives from some or all of the following: SFMTA in its capacity as project owner, the Office of Public Finance of San Francisco ("**OPF**"), Nossaman LLP ("**Nossaman**") in its capacity as external counsel to SFMTA, Arup Americas Inc. ("**Arup**") in its capacity as financial advisor to SFMTA, the California Municipal Finance Authority ("**CMFA**") in its capacity as conduit issuer, PRG – Potrero Properties LLC ("**NPE**") in its capacity as Non-Profit Entity and borrower for the financing, Potrero Neighborhood Collective LLC ("**PNC**") in its capacity as the Principal Project Company under the Project Implementation Agreement and Developer under the Predevelopment Agreement, Wells Fargo Bank, N.A. in its capacity as senior managing underwriter ("**WF**"), and Jefferies LLC ("**Jefferies**") in its capacity as co-managing underwriter. SFMTA may include other representatives for some or all of the process at its discretion. **[NTD: SFMTA to advise if individuals from City Attorney's office should also be included in this process.]**

2. Updates to Base Case Financial Model

To the extent any updates to the Base Case Financial Model are mutually agreed by PNC and SFMTA prior to the Bond Pricing Date, PNC shall circulate a proposed updated financial model to be used for the APC update process. Upon written concurrence by SFMTA, such model will be considered the Base Case Financial Model for the purposes of the APC update process. Otherwise, the Financial Model submitted by PNC as part of the Financial Implementation Proposal dated Feb [XX], 2026 will be considered the Base Case Financial Model for the purposes of the APC update process.

3. Principles for APC Update Process

[a] Note: Any change to APC pursuant to this APC Update Guide will be applied to APC_{Base} in Exhibit 4B to the Project Agreement. APC_{DC} shall remain unchanged.

PNC and SFMTA agree to the following principles for the APC update process:

- On the Bond Pricing Date, PNC will manage the pricing call process and all attendees as set out in Schedule A.
- WF, in its capacity as senior managing underwriter, will be responsible for providing PNC with all data, inputs, and supporting information required for the APC update process.
- Prior to the Bond Pricing Date, SFMTA will have the right to request that PNC and its underwriters explore bond structuring alternatives that may help SFMTA best achieve its project affordability objectives (e.g., sub-5% coupons, etc.) and PNC and its underwriters will provide feedback on the potential APC impact and market viability of such bond structuring alternatives.
- The Base Interest Rate for the bonds will be priced by matching the then-current interpolated rates for each specific bond maturity from the Municipal Market Data AAA yield curve ("**MMD**") published by Thomson Reuters.
- During the Bond Pricing process, SFMTA and OPF will have transparent access and involvement in all aspects of the pricing process, including access to the underwriters' book building process via Ipreo, the market-standard real-time book building software.

4. Interim Updates and APC Update Dry Runs

PNC will provide SFMTA, OPF, Arup, and Nossaman, in accordance with the schedule outlined below, interim updates of expected Base Interest Rates, credit spreads, and coupons, along with supporting market information for reference. These updates will include scales, screenshots, and comparable transaction data.

PNC will deliver to SFMTA, OPF, Arup, and Nossaman the interim updates on or before the date of each of the scheduled dry-runs:

1. **Preliminary dry-run**: Early March
2. **Second dry-run**: Late March
3. **Final dry-run**: Two days before the Bond Pricing Date

5. Day Before Pricing Call

One day prior to the Bond Pricing Date, all parties will dial-into a conference call and WF (in coordination with Jefferies) will provide an update on pre-marketing Base Interest Rates, expected credit spreads and coupons, along with supporting market information for reference.

6. Pre-Pricing Call

On or about 9:30 AM ET the morning of the Bond Pricing Date, all parties will dial-in to WF's conference call line for a pre-pricing call. On this call, WF and Jefferies will discuss:

1. Market conditions
2. Indicative investor feedback
3. Proposed structure
4. Investor demand
5. Order period strategy
6. Proposed pricing levels
7. Likelihood of an Affordability Event occurring (PNC to lead this portion of the discussion)

7. Bond Pricing

On or about 12:30 PM ET the day of the Bond Pricing Date, all parties will dial-into a conference call for the bond pricing. The purpose of the call will be to discuss:

1. Current market conditions
2. Results of the order period
3. Proposed final pricing levels
4. Confirmation that an Affordability Event will not occur (PNC to lead this portion of the discussion)

Prior to this call, WF will provide PNC by email a "Proposed Scale," including Base Interest Rates, credit spreads, and coupons for each maturity to be circulated by PNC to all parties on the call. Screenshots of the identified Base Interest Rates will also be provided. PNC will provide this information to all other parties.

Wells Fargo: "This is Wells Fargo. On behalf of the Underwriters, this is an offer to underwrite at the Proposed Scale, subject to the terms and conditions contained in the Bond Purchase Agreement and final execution of the Bond Purchase Agreement and no material changes as a result of the model optimization process."

PNC: "This is PNC. Proceed with these rates. This serves as the verbal award at these levels."

NPE: "This is [individual to be selected by NPE]. Proceed with these rates. This serves as the verbal award at these levels."

CMFA: "This is [individual to be selected by CMFA]. Proceed with these rates. This serves as the verbal award at these levels."

SFMTA: "This is [individual to be selected by SFMTA]. Proceed with these rates. This serves as the verbal award at these levels."

PNC: "This is PNC. This concludes the bond pricing exercise. We will proceed with the GIC discussion."

8. GIC Selection Call

On or about 12:45 PM ET the day of the Bond Pricing Date, all parties excluding the underwriters will dial-into a conference call for the D&C Period Guaranteed Investment Contract ("**GIC**") selection call. The purpose of the call will be to discuss selection of a GIC provider and finalization of the GIC rate.

PNC: "This is PNC. PNC conducted a competitive bid process for the guaranteed investment contract and determined that [GIC Provider] offered the highest bid with an all-in rate of [●]%, net of any broker's fees. The sounding process was conducted in accordance with Section 1.148-5 of the Treasury Regulations. A total of [●] financial institutions were given an equal opportunity to bid, and [●] compliant bids were received."

PNC will then provide a summary of results and discuss any special conditions from the winning bidder. Following this discussion, SFMTA will confirm the GIC rate.

SFMTA: "This is [name] with SFMTA. Please proceed with the GIC rate of [●]%."

PNC: "This is [name], representing PNC. We acknowledge the GIC rate of [●]%."

PNC will conclude this call by reading aloud the following script:

PNC: "This is PNC. We will proceed with the model optimization call at [time in following section]. Thank you."

9. Transfer Sheet

Shortly after the GIC selection call, WF will circulate to PNC (i) a final scale, including Base Interest Rates, credit spreads, and coupons for each maturity, and (ii) proposed final principal amounts of the bonds, GIC Rate, and a proposed updated APC. After PNC solves its financial model prior to the model optimization call, it will populate a transfer sheet and distribute it to the participations of the model optimization call. The transfer sheet is designed to allow PNC and Arup to copy and paste all required inputs – including rates, spreads, coupons, call dates, principal amounts, the GIC rate, and the APC amount, directly into the financial model 'Inputs' worksheet to minimize the time it takes to complete the model optimization.

It should be noted that in the event that bonds with different credit spreads, call dates, and/or coupons are sold within the same maturity ("bifurcated" or "trifurcated" maturities), the inputs in the transfer sheet will represent a weighted average of these different bonds sold in any respective maturity.

10. Model Optimization

Stage **Activity**

(i) At 3:00 PM ET, PNC will open the conference call for the model optimization and confirm that SFMTA, OPF, WF, Jefferies, Arup, Nossaman, Provident, and CMFA are on the line. The parties may also agree in advance to use video technology, enabling screen sharing for the conference call. The time between the pricing call and the model optimization will give WF and PNC time to solve the model and provide SFMTA with necessary information during the model optimization process to minimize iterations of each step below.

(ii) PNC and Arup will confirm that they will be using the same financial model (filename: **[●]**). For greater certainty, the filename, size in KB, and file date and time will be read aloud and verified.

PNC: "This is PNC, we are using the financial model named [●], and the model size is [●] KB. The file is dated [●]"

Arup: "This is Arup. We confirm using the same financial model as described by PNC."

(iii) PNC and Arup will concurrently complete the following to update the model.

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet. Please update the GIC rate in cell J[●] to [●]%.

Arup: "This is Arup, we confirm the GIC rate is updated in cell J[●].

PNC: "This is PNC. Please add $[TBD] to the "Third Party Financing Closing Costs" in cell J[●] to include the GIC broker's fee. Once complete, please confirm that the total amount is $[TBD].

Arup: "This is Arup, we confirm the "Third Party Financing Closing Costs" were updated in cell J[●] and the total amount is $[TBD].

(iv) PNC and Arup will confirm that they will be using the same transfer sheet (filename: [●]). Additionally, two Base Interest Rates and two credit spreads randomly selected will be read out loud to provide greater certainty that the files match.

PNC: "This is PNC, we are using the transfer sheet named [TBD] which was updated by (name) at (time) on (date). The MMD rate for maturity [date] is [●], and for maturity [date] is [●]. The credit spread for maturity [date] is [●], and for maturity (date) is [●].

Arup: "This is Arup, we confirm using the same transfer sheet as described by PNC."

(v) PNC and Arup will first enter the Base Interest Rates into the financial model:

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet: Please copy the appropriate ranges from the transfer sheet circulated by PNC into the financial model as follows:

a. In cell J[●], enter the corresponding base interest rate for the tax-exempt milestone bonds.

b. In cells J[●] through J[●], enter the corresponding base interest rate for each listed tranche of the tax-exempt current interest bonds."

(vi) PNC and Arup will then enter the coupons into the financial model:

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet: Please copy the appropriate ranges from the transfer sheet circulated by PNC into the financial model as follows:

a. In cell J[●], enter the corresponding coupon for the tax-exempt milestone bonds.

b. In cells J[●] through J[●], enter the corresponding coupon for each listed tranche of tax-exempt current interest bonds."

(vii) PNC and Arup will then enter the credit spreads into the financial model:

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet: Please copy the appropriate ranges from the transfer sheet circulated by PNC into the financial model as follows:

a. In cell J[●], enter the corresponding credit spread for the tax-exempt milestone bonds.

b. In cells J[●] through J[●], enter the corresponding credit spread for each listed tranche of tax-exempt current interest bonds.

(viii) PNC and Arup will then enter call dates into the financial model:

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet: Please copy the appropriate ranges from the transfer sheet circulated by PNC into the financial model as follows:

a. In cell J[•], enter the corresponding call date for the tax-exempt milestone bonds.

b. In cells J[•] through J[•], enter the corresponding call date for each listed tranche of tax-exempt current interest bonds."

(ix) After the call dates are entered, PNC and Arup will enter the corresponding principal amounts for the tax-exempt current interest bonds, and the APC input.

PNC: "This is PNC. All of the following cell references refer to the 'Inputs' worksheet: Please copy the appropriate ranges from the transfer sheet circulated by PNC into the financial model as follows:

a. In cells J[•] through J[•], enter the corresponding principal amount for each maturity for the tax-exempt current interest bonds.

b. In cell J[•], enter the APC input."

(x) PNC and the Arup will concurrently complete the following in the 'Summ' worksheet:

*PNC: "****Press the 'Solve Financial Model' button in the 'Summ' worksheet. Allow the macro to run completely until the model is no longer iterating. Confirm that cell U23 is zero. If not, the parties should discuss and may need to repeat this step, starting with the initial model in Step 10(v)."***

(xi) Once Arup has a solved model, PNC will read out the following:

PNC: "This is PNC.

1. ***The APC as indicated on the 'Summ' worksheet cell J7 is [•].***
2. ***The Total Availability Payment as indicated on the 'Summ' worksheet cell J9 is [•].***
3. ***The debt size of the tax-exempt current interest bonds as indicated on the 'Summ' worksheet cell J36 is [•].***
4. ***The excess cashflow/distribution as indicated on the 'Summ' worksheet cell is cell E57 is [•]."***

(xii) If Arup's optimization yields different results, WF, PNC, and Arup will work to discuss the differences and re-optimize until the results are agreed.

(xiii) Once Arup agrees with the results of PNC's financial model optimization, they will read aloud the following script:

Arup: "This is Arup. We confirm:

1. ***The APC as indicated on the 'Summ' worksheet cell J7 is [●].***
2. ***The Total Availability Payment as indicated on the 'Summ' worksheet cell J9 is [●].***
3. ***The debt size of the tax-exempt current interest bonds as indicated on the 'Summ' worksheet cell J36 is [●].***
4. ***The excess cashflow/distribution as indicated on the 'Summ' worksheet cell is cell E57 is [●]."***

SFMTA: "This is SFMTA. We confirm the same."

(xiv) PNC will report the changed APC value to SFMTA/OPF/Arup and confirm the difference between the changed APC and the APC from the Base Case Financial Model.

PNC: "This is PNC, this model optimization process resulted in a changed Capital Availability Payment of [●]. The total adjustment to the APC is [●]. We confirm that no Affordability Event has occurred."

Arup: "This is Arup. We confirm the changed APC is [●], the total adjustment to the APC is [●], and no Affordability Event has occurred."

SFMTA, via [selected representative from SFMTA]: "This is [name]. I confirm the same and have determined that the Non-Profit Entity is entitled to such change to the APC in accordance with the terms of the Project Agreement, confirm that no Affordability Event has occurred, and that such change is subject to an amendment to the Project Agreement to update the APC."

(xv) Once the SFMTA has agreed with the results of PNC's optimization, PNC will read the following:

PNC: "This is PNC, the financial model optimized above will be saved with the following name: ***PNC IF Financial Model_[date]_[time]."***

The model name will include both the date and time that the model was saved.

(xvi) PNC will email SFMTA. OPF, and all other participants in Schedule A.

11. Execution of BPA

(xxv) After the model optimization and confirmation of the GIC rate, the parties to the Bond Purchase Agreement will take all necessary steps required to execute the same on the Day of Bond Pricing.

Schedule A – Participants for the APC Update Guide[b]

NAME	ORGANIZATION	CONTACT DETAILS
Tim Kempf Chris Lazaro Rob Jaques	SFMTA	tim.kempf@sfmta.com chris.lazaro@sfmta.com rob.jaques@sfmta.com
Anna Van Degna Grant Carson Vishal Trivedi	OPF	anna.vandegna@sfgov.org grant.carson@sfgov.org vishal.trivedi@sfgov.org
John Stoecker	CMFA	jstoecker@cmfa-ca.com
Chris Hicks Jaimee Boyd	NPE	cch@provident.org jboyd@provident.org
Arvan Anderson Alfonso Mendez Ignacio Barandiaran	Arup	arvan.anderson@arup.com alfonso.mendez@arup.com ignacio.barandiaran@arup.com
Corey Boock Lolly Enriquez	Nossaman	cboock@nossaman.com lenriquez@nossaman.com
Sid Jimenez Mark Blake	City Attorney's Office	isidro.jimenez@sfcityatty.org mark.blake@sfcityatty.org
Stuart Marks Chris Jauregui Sam Hull Ishani Desai	PNC	stuart.marks@plenaryamericas.com chris.jauregui@plenaryamericas.com sam.hull@plenaryamericas.com ishani.desai@plenaryamericas.com
Kevin Carney Julie Burger Gurami Kiladze Conner Farrell Chintan Dholakia Michael Swift Jordan Esi	Wells Fargo	kevin.g.carney@wellsfargo.com julie.burger@wellsfargo.com gurami.kiladze@wellsfargo.com conner.d.farrell@wellsfargo.com chintan.dholakia@wellsfargo.com michael.s.swift@wellsfargo.com Jordan.esi@wellsfargo.com
Simon Wirecki John Gust Kirsten Chalke Grant Roess	Jefferies	swirecki@jefferies.com jgust@jefferies.com kchalke@jefferies.com groess@jefferies.com

[b] Parties may add or amend its participants as required. There may be other representatives who choose to participate for all or part of the steps.

EXHIBIT 5G

FINANCING DOCUMENT TERMS

(a) The Security Documents may only secure Project Debt, the proceeds of which are obligated to be used exclusively for the purposes of:

(i) performing the Work and the payment of other expenditure incurred directly in connection with the Project;

(ii) paying interest and principal on other existing Project Debt and any costs and fees in connection with the development and award of the Project, achieving commercial close and closing and administering of any permitted Project Debt;

(iii) paying reasonable development fees to PPC-Related Entities or to a D&C Contractor or its affiliates for services related to the Project;

(iv) paying fees and premiums to any Lender of the Project Debt or such Lender's agents;

(v) paying Taxes;

(vi) funding reserves and allowances required under this Agreement, Financing Documents, applicable securities laws, or Environmental Laws; and

(vii) Refinancing any Project Debt in accordance with this Agreement.

(b) The Security Documents may only secure Project Debt and Financing Documents issued and executed by (a) the Non-Profit Entity, (b) Principal Project Company, (c) the Conduit Issuer, (d) the permitted successors and permitted assigns of any entity referenced in (a) – (c), (e) any special purpose entity that owns Non-Profit Entity or Principal Project Company but no other assets and has purposes and powers limited to the Project and the Work or (f) any special purpose entity or subsidiary wholly owned by Non-Profit Entity or Principal Project Company or such entity.

(c) Project Debt under a Financing Agreement and secured by a Security Document must be issued and held only by Institutional Lenders who qualify as such at the date the Security Document is executed and delivered (or, if later, at the date any such Institutional Lender becomes a party to the Security Document), except that investors, including PABs holders that may purchase the PABs in a public offering, other than Institutional Lenders may acquire and hold interests in Project Debt, but only if an Institutional Lender acts as Collateral Agent for such Project Debt.

(d) The Security Documents, as a whole, securing each separate issuance of debt shall encumber the entire NPE's Interest, provided that the foregoing does not preclude entry by Non-Profit Entity or Principal Project Company into subordinate Security Documents (such subordination to be in accordance with the terms set forth in the Financing Documents) or into equipment lease financing.

(e) No Security Document or other instrument purporting to mortgage, pledge, encumber, or create a lien, charge or security interest on or against NPE's Interest shall extend to or affect the

right, title and interest of the City in the Project or the Facility or City's rights or interests under this Agreement.

(f) No Security Document or other instrument purporting to mortgage, pledge, encumber, or create a lien, charge or security interest on or against NPE's Interest shall extend to or affect City's right to access Non-Profit Entity's funds held in an operating account in the event of a NPE Default and the exercise of remedies by City under Section 16.2 (City Remedies for NPE Default) of the Agreement; provided such right shall not include a security interest in such funds nor shall the exercise of such right by City interfere with the right of the Lenders, if any, under the Security Documents and the Direct Agreement to access such funds. For the avoidance of doubt, following the occurrence and during the continuance of an Event of Default (as defined in the Financing Agreement), the Collateral Agent shall have sole control of amounts in such operating account. Specifically, with respect to any such operating account (and associated account agreement and account control agreement):

(i) City shall be named as an authorized representative of Non-Profit Entity for purposes of the account, including specifically under any associated account control agreement, in the event of City's exercise of its Step-In Rights, and

(ii) Any account control agreement shall expressly state the terms, prohibitions, City rights and other provisions in this Exhibit 5G (Financing Document Terms), including specifically those set forth in Sections (g) through (m) of this Exhibit 5G (Financing Document Terms).

(g) Each note, bond or other negotiable or non-negotiable instrument evidencing Project Debt, or evidencing any other obligations issued or incurred by any Person described in this Exhibit 5G (Financing Document Terms) in connection with this Agreement or the Project shall include or refer to a document controlling or relating to the foregoing that includes a conspicuous recital on its face to the effect that payment of the principal thereof and interest thereon is a valid claim only as against the obligor and the security pledged by Non-Profit Entity, Principal Project Company, Conduit Issuer or the obligor therefor, is not an obligation, moral or otherwise, of the City, any other agency, instrumentality or political subdivision of the City, or any elected official, member, director, officer, employee, agent or representative of any of them, and neither the full faith and credit nor the taxing power, and no assets, of the City, or any other agency, instrumentality or political subdivision of the City is pledged to the payment of the principal thereof and interest thereon.

(h) Each Financing Document containing provisions regarding default by Non-Profit Entity shall require that if Non-Profit Entity is in default thereunder and the Collateral Agent gives notice of such default to Non-Profit Entity, then the Collateral Agent shall also give concurrent notice of such default to City. Each Financing Document and Security Document that provides Lender remedies for default by Non-Profit Entity shall require that the Collateral Agent deliver to City, concurrently with delivery to Non-Profit Entity or any other Person, every notice of election or enforcement of remedies, including an election to sell or foreclose, notice of sale or foreclosure or other notice required by Applicable Law or by the Security Document in connection with the exercise of remedies under the Financing Document or Security Document.

(i) Intentionally Omitted

(j) Each Financing Document and Security Document shall expressly state that the Lender shall not name or join City, any other agency, instrumentality or political subdivision of the City,

or any elected official, member, director, officer, employee, agent or representative of any of them in any legal proceeding seeking collection of the Project Debt or other obligations secured thereby or the foreclosure or other enforcement of the Financing Documents, except to the extent provided in Section (k) below or as such language may be modified in the Financing Documents approved by City as provided in any Direct Agreement.

(k) Each Financing Document shall expressly state that the Lender shall not seek any damages or other amounts from City, any other agency, instrumentality or political subdivision of the City, or any elected official, member, director, officer, employee, agent or representative of any of them, whether for Project Debt or any other amount, except (a) damages from City only for a violation by City of its express obligations to Lenders set forth in any Direct Agreement, if applicable, and (b) amounts due from City under this Agreement where the Lender has succeeded to the rights and interests of Principal Project Company under this Agreement, whether by way of assignment or subrogation.

(l) Each Financing Document shall expressly state that the Collateral Agent shall respond to any request from City or Non-Profit Entity for consent to a modification or amendment of any of this Agreement within a reasonable period of time.

EXHIBIT 5H

FORM OF OPINION FROM PRINCIPAL PROJECT COMPANY'S LEGAL COUNSEL

[***Insert Firm Letterhead***]

San Francisco Municipal Transportation Agency
1 South Van Ness, 8th Floor
San Francisco, CA 94103
Attn: Chris Lazaro

PRG – Potrero Properties LLC
c/o Provident Resources Group Inc.
5565 Bankers Avenue
Baton Rouge, LA 70808

U.S. Bank Trust Company, National Association, as Collateral Agent
1 California Street, Suite 1000
San Francisco, CA 94111

____, 2026

Ladies and Gentlemen:

We [_____] ("**Firm**") have acted as special counsel to Potrero Neighborhood Collective LLC, a Delaware limited liability company (**"Principal Project Company"**) in connection with the Project Implementation Agreement for the Potrero Yard Modernization Project dated as of [_____], 2026 (the "**Agreement**") between PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc. (the "**Non-Profit Parent**"), a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code, and the Principal Project Company. The Agreement is entered into pursuant to that certain Infrastructure Facility Project Agreement for the Potrero Yard Modernization Project dated as of [_____], 2026 (the "**DBF Agreement**") between the City and County of San Francisco ("**City**"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), and the Non-Profit Entity.

This opinion is being furnished pursuant to Section 3.2.4 (Conditions Precedent to Financial Close) of the DBF Agreement and Section 3.1.1.1 of the Agreement. Capitalized terms used herein without definition have the meanings ascribed to such terms in the Agreement.

In connection with the opinions contained herein, we have examined executed counterparts, or copies of such executed counterparts certified or otherwise identified to our satisfaction, of:

(i) the Agreement; and

(ii) the DBF Agreement.

We have further examined and relied upon the accuracy of original, certified, conformed, photocopied or telecopied copies of such records, agreements, certificates and other documents as we have deemed necessary or appropriate to enable us to render the opinions expressed herein. In all such examinations we have assumed the genuineness of signatures on original documents and the conformity to such original documents of all copies submitted to us as certified, conformed, photocopied or telecopied copies. We have further assumed that none of such documents has been subsequently rescinded, revoked, restated, modified or amended in any way other than by documents that have been submitted to us. We have made no independent inquiry or investigation of any factual matters or circumstances relevant to the opinions herein set forth, but instead have relied solely upon the accuracy of oral or written statements and representations of officers and other representatives of the Principal Project Company, statements, representations and warranties made in the Agreement.

In our examination, we have assumed, without independent investigation, the following:

(i) the Agreement has been duly authorized, executed and delivered by each party thereto (other than the Principal Project Company);

(ii) that each party (other than the Principal Project Company) to the Agreement is duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization, and has full power and authority to enter into and to carry out its obligations under the Agreement;

(iii) the authorization, execution and delivery by each party (other than the Principal Project Company) of the Agreement does not, and such party's performance thereunder will not, breach, conflict with, or constitute a violation of, (A) the organizational documents, bylaws or similar governing documents of such party or (B) any laws or any writ, order, injunction or decree of any court or governmental authority or any provision of any agreement or instrument to which such party or its properties may be bound;

(iv) that the Agreement is the legal, valid and binding obligation of each party thereto (other than the Principal Project Company) enforceable against such party in accordance with the terms of the Agreement;

(v) the legal capacity and competency of all Persons signing the Agreement on behalf of the parties thereto (other than the Principal Project Company); and

(vi) that each party to the Agreement (other than the Principal Project Company) has all necessary governmental consents, approvals, licenses or permits required in order to execute and deliver the Agreement to which it is a party.

The opinions set forth below that make reference to, or are stated to be qualified by, the expression "to our knowledge" or any expression of similar import are limited to the current actual knowledge of the individual attorneys at this Firm who have devoted substantial attention to the representation of the Principal Project Company in connection with the preparation, negotiation, execution and delivery of the Agreement (but not the knowledge of any other attorney of this Firm or any constructive or imputed knowledge of any information, whether by reason of our representation of the Principal Project Company or otherwise). We have not undertaken an

independent investigation to determine the accuracy of any such statement, and any limited inquiry undertaken by us during the preparation of this letter should not be regarded as such an investigation.

Based upon the foregoing and our examination of such questions of law as we have deemed necessary or appropriate, and subject to limitations and qualifications set forth below, it is our opinion that:

1. The Principal Project Company is a limited liability company validly existing and in good standing under the laws of the State of Delaware and has all requisite limited liability company power to execute and deliver, and to perform its obligations under, the Agreement.

2. The Principal Project Company is qualified to transact interstate business as a foreign limited liability company in the State of California.

3. The execution and delivery of, and the performance of obligations under, the Agreement by the Principal Project Company, have been duly authorized by all necessary action on the part of the Principal Project Company. Each person executing the Agreement on the Principal Project Company's behalf has been duly authorized to execute and deliver the Agreement on Principal Project Company's behalf, and the Agreement has been duly executed and delivered by the Principal Project Company.

4. The Agreement constitutes the legal, valid and binding obligation of the Principal Project Company, enforceable against the Principal Project Company in accordance with the terms thereof.

5. The execution and delivery by the Principal Project Company of the Agreement does not, and the consummation by it of the transactions contemplated thereunder will not, result in a violation by Principal Project Company of any provision of the LLC Agreement (as defined in Annex I) or the Certificate of Formation (as defined in Annex I).

6. The execution and delivery by the Principal Project Company of the Agreement and the performance of its obligations under the Agreement are within its powers and do not and will not conflict with, or constitute a breach or result in a violation of (a) any existing constitutional or statutory provision of the State of California, (b) to my knowledge, any existing agreement or other instrument to which Principal Project Company is a party or by which it is bound, or (c) to my knowledge, any existing order, rule, regulation, judgment, decree ordinance of any court, government or governmental authority having jurisdiction over Principal Project Company as applicable or its properties.

Our opinions are subject to the following additional assumptions, limitations and qualifications:

A. Our opinions are subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and to general principles of equity, including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing, regardless of whether considered in a proceeding in equity or at law. Without limiting the foregoing

qualifications, the opinions expressed herein do not purport to cover, and we express no opinion with respect to, the applicability of Section 548 of the federal Bankruptcy Code or any comparable provision of state law, including the provisions relating to fraudulent conveyances. We express no opinion with respect to compliance with any law, rule or regulation that as a matter of customary practice is understood to be covered only when an opinion refers to it expressly. Without limiting the generality of the foregoing, we express no opinion on local or municipal law, antitrust, environmental, land use, securities, tax, pension, employee benefit, margin, insolvency, antiterrorism, money laundering, or investment company laws and regulations.

B. Indemnities, rights of contribution, exculpatory provisions, provisions in respect of broadly or vaguely stated rights, rights to liquidated damages, penalties or punitive damages, waivers of the benefits of statutory, regulatory or constitutional rights, waivers of rights and unknown future defenses, [waiver of rights to a jury trial] and provisions requiring arbitration of disputes may be limited on public policy grounds or may be prohibited by law.

C. Certain of the remedies in the Agreement may be limited or rendered unenforceable by applicable law. In our opinion, however, applicable law does not render the remedies afforded by the Financing Documents inadequate for the practical realization by the Lenders of the principal benefits intended to be provided by the Financing Documents.

D. We express no opinion with respect to any provision of the Agreement that purports to require a prevailing party in a dispute to pay attorney's fees and expenses, or other costs, to a non-prevailing party. The enforcement of Section [__] of the Agreement, relating to the payment of attorneys' fees and costs, is subject to the limitations of Section 1717 of the California Civil Code.

E. We express no opinion as to the enforceability of any agreements in the Agreement by the parties thereto to agree in the future upon any matter.

F. We express no opinion regarding the enforceability of Section 23.9 of the Agreement, which purports to fix the venue of proceedings relating to the Agreement.

G. Our opinion in paragraph 1 with respect to the valid existence and good standing of the Principal Project Company in Delaware is based solely upon a certificate dated as of a recent date as to the good standing of the Principal Project Company in Delaware, issued by the Secretary of State of the State of Delaware, a copy of which has been delivered to you.

This letter speaks only as of the date hereof, and we disclaim any undertaking to update this letter to take into account any future changes of fact or law. The opinions expressed herein are solely for your benefit, and may not be relied on in any manner or for any purposes by any other Person without our written consent, and are not to be used, circulated, quoted, published or otherwise referred to or disseminated for any other purpose.

Very truly yours,

[*Insert Signature*]

EXHIBIT 6[1]

FORMS OF PAYMENT AND PERFORMANCE SECURITY

Exhibit 6A: Financial Close Security

Exhibit 6B: Form of D&C Payment Bond[1]

Exhibit 6C: Form of D&C Performance Bond[1]

Exhibit 6D: Form of Multiple Obligee Rider for D&C Payment Bond[1]

Exhibit 6E: Form of Multiple Obligee Rider for D&C Performance Bond[1]

Exhibit 6F: Form of D&C Contractor Guaranty

[1] If the bond is to secure the performance or payment obligations of the D&C Contractor or other Key Contractor, rather than Non-Profit Entity, then the form of the bond shall be revised in accordance with Section 10.3.1.8 of this Agreement.

[1] Exhibit 6 remains under development and negotiation.

EXHIBIT 6A

FORM OF FINANCIAL CLOSE SECURITY

FORM 6A-1 - FORM OF FINANCIAL CLOSE BOND[1]

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that the _____, as Principal and _____, as Surety, each authorized and licensed to transact business in the State of California ("**State**"), and each a corporation duly organized under the laws of the State indicated on the attached page, having its principal place of business at the address listed on the attached page, in the State indicated on the attached page, and each Surety authorized as a surety in the State, are jointly and severally held and firmly bound unto the City and County of San Francisco (the "**City**"), a municipal corporation acting by and through the **San Francisco Municipal Transportation Authority** ("**SFMTA**"), in the sum of Fifteen **United States Dollars (US $15,000,000)**] (the "**Bonded Sum**"), the payment of which we each bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into an Infrastructure Facility Design-Build-Finance Agreement with the City dated as of _____ ,2026 (the "**Agreement**") to design, construct and finance the Infrastructure Facility of the Potrero Yard Modernization Project (the "**Project**");

NOW, THEREFORE, the condition of this bond is such that this obligation shall be null and void upon (a) occurrence of Financial Close for the Project by the Financial Close Deadline set forth in the Agreement; or (b) Principal's receipt of written Notice from City that the Agreement is terminated pursuant to Section 17.6 of the Agreement; otherwise it shall remain in full force and effect, and the Bonded Sum will be forfeited to City as liquidated damages and not as a penalty, upon receipt by Principal and Surety of Notice of such forfeiture from City:

The Surety hereby agrees to pay to City the full Bonded Sum hereinabove set forth, as liquidated damages and not as a penalty, within ten days after Notice from City that Principal has failed to achieve Financial Close by the Financial Close Deadline set forth in the Agreement, and such failure is not excused in accordance with the Agreement.

The following terms and conditions shall apply with respect to this bond:

1. If suit is brought on this bond by City and judgment is recovered, Surety shall pay all costs incurred by City in bringing such suit, including, without limitation, reasonable attorneys' fees and costs as determined by the court.

[1] The amount of a single bond may be less than $15,000,000 on the condition that Principal provides Financial Close Security that totals $15,000,000 in the aggregate.

2. Any extension(s) of the time for award of the Agreement that Principal may grant in accordance with the Agreement or otherwise, shall be subject to the reasonable approval of Surety.

3. Correspondence, Notices or claims relating to this bond should be sent to Surety at the following address:

_____
_____
_____

This agreement shall be binding on the Principal and Surety executing the same, their legal representatives, successors and assigns.

Capitalized terms used but not defined herein shall have the meaning given to them in the Agreement.

SIGNED and SEALED this _____ day of _____, 2026

_____
Principal

By: _____

_____
Surety

By: _____
Attorney in Fact

[add appropriate Surety acknowledgments]

FORM 6A-2 - FORM OF FINANCIAL CLOSE LETTER OF CREDIT[c]

IRREVOCABLE STANDBY LETTER OF CREDIT – FINANCIAL CLOSE

ISSUER:_____

PLACE FOR PRESENTATION OF DRAFT: (Name and Address of Bank/Branch -- MUST be San Francisco, California, Los Angeles, California, Chicago, Illinois, or New York, New York address)

APPLICANT: POTRERO NEIGHBORHOOD COLLECTIVE LLC

BENEFICIARY: CITY AND COUNTY OF SAN FRANCISCO
San Francisco Municipal Transportation Agency
1 South Van Ness Avenue
San Francisco, CA 94103
Attention: Bree Mawhorter, Chief Financial Officer

LETTER OF CREDIT NUMBER:_____

PLACE AND DATE OF ISSUE:_____

AMOUNT: Fifteen Million United States Dollars (US $15,000,000)]

EXPIRATION DATE: _____, 2026

The above named Issuer issues this Irrevocable Standby Letter of Credit in favor of the City and County of San Francisco ("**City**"), for any sum or sums up to the aggregate amount of Fifteen Million **United States Dollars (US $15,000,000)**, available by draft at sight drawn on the Issuer. Any draft under this Irrevocable Standby Letter of Credit shall be signed by an authorized representative of the above named Beneficiary and shall:

1. Identify this Irrevocable Standby Letter of Credit by the name of the Issuer, and the Letter of Credit number, amount, and place and date of issue, stated above; and

2. State:

   "This drawing is due to Potrero Neighborhood Collective LLC's failure to achieve Financial Close by the Financial Close Deadline set forth in the Infrastructure Facility Design-Build-Finance Agreement with the City and County of San Francisco dated as of ____ 2026 (the "**Agreement**") without excuse under the Agreement."

[c] The amount of a single letter of credit may be less, on the condition that Proposer provides Financial Close Security that totals $15,000,000 in the aggregate.

All drafts presented in compliance with the terms of this Irrevocable Standby Letter of Credit will be honored if presented by physical delivery of such original documents or via overnight courier of such original documents to _____(Name & San Francisco, California, Los Angeles, California, Chicago, Illinois, or New York, New York address) on or before the stated expiration date described above or any extended expiration date.

This Irrevocable Standby Letter of Credit is subject to the rules of the "International Standby Practices" ISP98. If a conflict between ISP98 and New York law should arise, New York law shall prevail, without regard to principles of conflicts of law. If legal proceedings are initiated by any party with respect to payment of the Irrevocable Standby Letter of Credit, we agree that such proceeding shall be governed by New York law and may be brought in the State Courts of New York, venue in New York City, provided that the obligations of City shall be governed and construed in accordance with California law. Venue for any proceeding involving issues related to the obligations of City shall be in San Francisco, California.

Any failure by you to draw upon this Irrevocable Standby Letter of Credit as permitted hereunder shall not cause this Irrevocable Standby Letter of Credit to be unavailable for any future drawing, provided that this Irrevocable Standby Letter of Credit has not expired prior to such future drawing and that all requirements of this Irrevocable Standby Letter of Credit are independently satisfied with respect to any such future drawing.

Capitalized terms used but not defined herein shall have the meaning given to them in the Agreement.

Issuer:

By: _____(Authorized signature of Issuer)

EXHIBIT 6B

FORM OF D&C PAYMENT BOND
(Bond No. _____)

KNOW ALL MEN BY THESE PRESENTS:

That PRG-Potrero Properties LLC ("Non-Profit Entity") has entered into a contract with the City and County of San Francisco (the "City"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("SFMTA"), bearing the date of [INSERT DATE], 2026 (the "Project Agreement"), to design, build and finance the Infrastructure Facility of the Potrero Yard Modernization Project (the "Project"); and

That Potrero Neighborhood Collective LLC ("Principal Project Company"), an entity duly authorized to do business in the State of California (the "State") entered into a contract (the "Project Implementation Agreement") with Non-Profit Entity bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project;

That Webcor Construction, LP (Design-Builder Name), an entity duly authorized to do business in the State of California (the "State") and having its principal place of business at _____ ([Street Address, City, State, Zip and Phone #)] (the "Principal" or "Contractor"), have entered into a contract (the "Contract") with Principal Project Company bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project; That the Principal and _____ (the "Surety"), duly authorized to do business in the State, having its principal place of business at _____ (Home Office Address) are held and firmly bound unto Principal Project Company, in the full and just sum of **SIX HUNDRED TWELVE MILLION ONE HUNDRED SEVEN THOUSAND DOLLARS** lawful money of the United States of America **(US$612,107,000),** to whom payment well and truly will be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally;

CONDITIONS OF THIS BOND ARE AS FOLLOWS:

A. Principal shall promptly make all payments owing when due to all persons who furnish labor, services, or materials for the prosecution of the work provided for in the Contract.

B. Each said claimant shall have a right of action against the Principal and Surety for the amount due him or her, including unpaid finance charges due under the claimant's contract.

C. A claimant, except a laborer, who is not in privity with the Principal shall, before commencing or not later than 90 days after commencing to furnish labor, materials, or supplies for the prosecution of the work, furnish the Principal with a notice that he or she intends to look to this Bond for protection. A claimant who is not in privity with the Principal and who has not received payment for his or her labor, materials, or supplies shall deliver to the Principal and to the Surety written notice of the performance of the labor or delivery of the materials, or supplies and of the nonpayment. The notice of nonpayment may be served at any time during the progress of the work or thereafter but

not before 45 days after the first furnishing of labor, services, or materials, and not later than 90 days after the final furnishing of the labor, services, or materials by the claimant or, with respect to rental equipment, not later than 90 days after the date that the rental equipment was last on the job site available for use. No action for the labor, materials, or supplies may be instituted against the Principal or the Surety unless both notices have been given. Notices required or permitted may be served in accordance with Section 8106, California Civil Code. An action, except for an action exclusively for recovery of retainage, must be instituted against the Principal or the Surety on this Bond within 1 year after the performance of the labor or completion of delivery of the materials or supplies, or within 90 days after receipt of final payment (or the payment estimate containing Principal Project Company's final reconciliation of quantities if no further payment is earned and due as a result of deductive adjustments) by the Principal or Surety, whichever comes last. The time periods for service of a notice of nonpayment or for bringing an action against a Principal or a Surety shall be measured from the last day of furnishing labor, services, or materials by the claimant.

D. An action must be instituted by a claimant, whether in privity with the Principal or not, against the Principal or the Surety on this Bond within 365 days after the expiration of the Warranty Period (pursuant to the Project Agreement). A claimant may not waive in advance his or her right to bring an action under this Bond against the Surety. In any action brought to enforce a claim against this Bond under this section, the prevailing party is entitled to recover a reasonable fee for the services of his or her attorney for trial and appeal, in an amount to be determined by the court, which fee must be taxed as part of the prevailing party's costs, as allowed in equitable actions.

E. The amount of this Bond is a fixed amount and shall not be changed.

F. Neither any change in or under the Contract, nor any compliance or noncompliance with any formalities provided in the Contract nor the change shall relieve the Surety of its obligations under this Bond.

IN WITNESS WHEREOF, Principal and Surety have executed these presents and the Surety has affixed its seal, this _____ day of _____, 20__.

PRINCIPAL: Webcor Construction, LP Date: _____

Authorized Signature: _____

Print Name & Title: _____

NAME OF SURETY: _____

Date: _____

Signature (Attorney-in-Fact): _____

(Affix Seal)

Print Full Name, Address and Telephone No.

_____

[If more than one Surety, then add appropriate number of lines to signature block]

NOTES CONCERNING SURETY AND EXECUTION:

A. SURETY COMPANY REQUIREMENTS

To be acceptable to the City, the Surety shall meet all of the requirements of the Project Agreement, laws of California and the regulations of the City, and has the City's approval.

B. EXECUTION OF BOND

1. Enter the Surety's name and address on each copy of this Bond in the space provided.

2. Have each copy of this Bond signed by the same person that signed the Contract on behalf of the Principal (affix Corporate Seal, if appropriate).

3. Have each copy of this Bond signed by the person authorized to sign on behalf of the Surety. Put the date the signature was affixed in the space provided. Print that person's name in the place provided on each copy of this Bond. Also, have the Surety's Corporate Seal affixed to each copy of this Bond beside that person's signature (no facsimiles are acceptable).

4. Each copy of this Bond must have a Power of Attorney attached indicating that the person in item B.3 above is authorized to sign on behalf of the Surety.

5. Each copy of the Power of Attorney must have the Surety's Corporate Seal manually affixed unless facsimile seal is authorized.

6. The date of execution of the Power of Attorney is the same as the date shown on the signature line for the Surety Attorney-In-Fact.

CALIFORNIA ALL PURPOSE ACKNOWLEDGEMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of _____

County of _____

On this ___ day of _____ in the year of _____ before me, a notary public in and for the county and state aforesaid, personally appeared _____
_____who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to within the instrument and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

Witness my hand and official seal:

_____(SEAL)_____

Signature of Notary Public

EXHIBIT 6C

FORM OF D&C PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That PRG – Potrero Properties LLC ("Non-Profit Entity") has entered into a contract with the City and County of San Francisco (the "City"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("SFMTA"), bearing the date of [INSERT DATE], 2026 (the "Project Agreement"), to design, build and finance the Infrastructure Facility of the Potrero Yard Modernization Project (the "Project"); and

That Potrero Neighborhood Collective LLC ("Principal Project Company"), an entity duly authorized to do business in the State of California (the "State") entered into a contract (the "Project Implementation Agreement") with Non-Profit Entity bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project;

That Webcor Construction, LP (Design-Builder Name), an entity duly authorized to do business in the State of California (the "State") and having its principal place of business at _____ ([Street Address, City, State, Zip and Phone #)] (the "Principal" or "Contractor"), have entered into a contract (the "Contract") with Principal Project Company bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project; and

That the Principal and _____ (the "Surety"), duly authorized to do business in the State, having its principal place of business at _____ (Home Office Address) are held and firmly bound unto Principal Project Company in the full and just sum of **SIX HUNDRED TWELVE MILLION ONE HUNDRED SEVEN THOUSAND DOLLARS** lawful money of the United States of America **(US$612,107,000)**, to whom payment well and truly will be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents;

WHEREAS, it was one of the conditions of the Contract, the Project Implementation Agreement and the Project Agreement that these presents shall be executed;

NOW, THEREFORE, the conditions of this obligation are such that if Principal shall faithfully, promptly, efficiently and fully perform in accordance with the obligations of the Contract and shall indemnify and save harmless Principal Project Company from all cost and damage by reason of Principal's failure to do so, and further if the Principal shall promptly pay all State Workers' Compensation and Unemployment Compensation taxes incurred in the performance of the Contract obligations and shall be liable to the City in a civil action instituted by the City or any officer of the City authorized in such cases for double any amount in money or property the City may lose or be overcharged or otherwise defrauded of, by reason of any wrongful or criminal act, if any, of the Principal, its agents, and employees, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Principal Project Company may, but is not obligated to, provide written notice to Principal, with a copy to the Surety and each Additional Obligee, that Principal Project Company is considering declaring a default by Principal under the Contract. The notice may indicate that Principal Project

Company is requesting a conference among Principal Project Company, Principal and the Surety to discuss Principal's performance or payment. If a conference is not requested by Principal Project Company in any such notice, then the Surety may, within five (5) business days after receipt of such notice, deliver written notice to Principal Project Company requesting such a conference. If Principal Project Company or the Surety requests such a conference, then Principal Project Company, Principal and the Surety will attend. Such conference shall be held within ten (10) business days of delivery of the relevant notice requesting such conference. Failure on the part of Principal Project Company to comply with the notice provisions in this paragraph or participate in any conference shall not constitute a failure to comply with a condition precedent to the Surety's obligations or release the Surety from its obligations.

Should the Principal be declared to be in default of its obligations under the Contract, the Surety shall pay Principal Project Company all costs assessed against the Principal because of the default(s) which were not withheld from Contract proceeds, and upon Principal Project Company's demand, the Surety shall (i) take over performance of the Contract obligations; provided, however, that in the event Principal Project Company elects to have the Surety take over performance of the Contract obligations, the Surety may not select the Principal or any affiliate of the Principal to perform the Contract obligations for and on behalf of the Surety without Principal Project Company's express written consent; (ii) waive the right to take over performance of the Contract obligations and tender payment of an amount necessary to compensate Principal Project Company and the Additional Obligees, as applicable, for all costs assessed against and amount owing from Principal because of its breach of the Contract, up to the full penal sum of this Performance Bond; or (iii) obtain bids or negotiated proposals from qualified Contractors acceptable to Principal Project Company and City for a contract for performance of the Contract obligations, arrangement for a contract to be prepared for execution by Principal Project Company and a contractor selected with the concurrence of Principal Project Company and City, acting reasonably, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract.

The Surety shall be fully liable under this bond up to the full penal sum hereof, regardless of any modifications (of whatever amount) to the Contract amount. The obligations covered by this bond specifically include liability for liquidated damages and warranties as specified in the Contract, as well as any Design Work performed prior to the effective date of the Contract, but in any event shall not exceed the penal sum of this Bond.

WITNESS the signature of the Principal and the signature of the Surety by _____ its _____ (Agent or Attorney-in-Fact) with the seals of said Principal and Surety hereunto affixed this _____ day of _____, _____.

Complete the following as appropriate

_____

Webcor Construction, LP

Authorized Signature: _____

*Signature: _____

Printed Name: _____

* _____ Title: _____ (Seal)
*Include the signature and printed name of each partner required to be affixed per partnership agreement.

Principal shall record this bond in the official records of the Clerk of Court of the county where the improvement is located prior to commencing the work.

Organized and existing under the laws of the State of _____ and authorized to do business in the State of California, pursuant to the laws of the State of California.	
Countersigned: _____ California Licensed Insurance Agent Print information below (California Licensed Insurance Agent; whether in Attorney-in-Fact or Countersignature role): Name: _____ Business Address: _____ Telephone: _____	_____ Surety Company Name (Print) (Seal) By: _____ California Licensed Insurance Agent or Attorney-in-Fact (Surety) □ Above Signatory is also a California Licensed Insurance Agent (check if applicable and complete business name, address and telephone number block; if not, have such an agent countersign and complete block). NOTE: Power of Attorney showing authority of Surety's Agent or Attorney-in-Fact is to be attached.

[If more than one Surety, then add appropriate number of lines to signature block]

Send “Notices to City” to:

CALIFORNIA ALL PURPOSE ACKNOWLEDGEMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

State of _____

County of _____

On this ___ day of _____ in the year of 2025 before me, a notary public in and for the county and state aforesaid, personally appeared _____ _____who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to within the instrument and acknowledged to me that he/she executed the same in his/her authorized capacity(ies), and that by his/her signature(s) on the instrument, the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

Witness my hand and official seal:

_____(SEAL)_____

Signature of Notary Public

EXHIBIT 6D

FORM OF MULTIPLE OBLIGEE RIDER – PAYMENT BOND

MULTIPLE OBLIGEE

RIDER

This Rider is executed concurrently with and shall be attached to and form a part of Payment Bond No. _____ (the "Payment Bond").

WHEREAS, PRG-Potrero Properties LLC ("Non-Profit Entity") has entered into a contract with the City and County of San Francisco (the "City"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("SFMTA"), bearing the date of [INSERT DATE], 2026 (the "Project Agreement"), to design, build and finance the Infrastructure Facility of the Potrero Yard Modernization Project (the "Project");

WHEREAS Potrero Neighborhood Collective LLC ("Primary Obligee"), an entity duly authorized to do business in the State of California (the "State") entered into a contract (the "Project Implementation Agreement") with Non-Profit Entity bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project;

WHEREAS, on or about the _____ day of _____, 2026, Webcor Construction, LP, (hereinafter called the "Principal"), entered into a written agreement (hereinafter called the "Contract") with Primary Obligee for the Project; and

WHEREAS, the Primary Obligee requires that Principal provide the Payment Bond and that the Non-Profit Entity, the City and County of San Francisco, and U.S. Bank Trust Company, National Associated, as collateral agent, be named as additional obligees under the Payment Bond; and

WHEREAS, Principal and the Surety have agreed to execute and deliver this Rider currently with the execution of the Payment Bond upon the conditions herein stated.

NOW, THEREFORE, the undersigned agree and stipulate that (i) Non-Profit Entity; (ii) the City and County of San Francisco, a municipal corporation acting by and through the San Francisco Municipal Transportation Agency and (iii) U.S. Bank Trust Company, National Association, as collateral agent shall be added to the Payment Bond as named obligees (hereinafter referred to as "Additional Obligees").

PROVIDED, HOWEVER, that the Surety shall not be liable under the Payment Bond to the Primary Obligee, the Additional Obligees, or any of them, unless the Primary Obligee, the Additional Obligees, or any of them, shall make payments to the Principal (or in the case the Surety arranges for completion of the Contract, to the Surety) strictly in accordance with the terms of said Contract as to payments and shall perform all other obligations to be performed under said Contract in all material respects at the time and in the manner therein set forth; and

PROVIDED, FURTHER that the aggregate liability of the Surety under this Payment Bond, to any or all of the obligees, as their interests may appear, is limited to the penal sum of said Payment Bond, that the Additional Obligees' rights hereunder are subject to the same defenses Principal and/or Surety have against the Primary Obligee, and that the total liability of the Surety shall in no event exceed the amount recoverable from the Principal by the Primary Obligee under the Contract; and

PROVIDED, FURTHER that in the event of a conflict between the Payment Bond and this Rider, this Rider shall govern and control. All references to the Payment Bond, either in the Payment Bond or in this Rider, shall include and refer to the Payment Bond as supplemented and amended by this Rider. Except as herein modified, the Payment Bond shall be and remains in full force and effect.

Except as herein modified, said Payment Bond No. _____ shall be and remains in full force and effect.

Signed, sealed and dated this _____ day of _____, 20___.

Attest:

(SEAL)

_____
Secretary

Webcor Construction, LP
(Name of Principal

By: _____

Title: _____

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Surety / Co-Surety)

By:_____

Title:_____

_____

_____
(Business Address of Surety / Co-Surety)

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Co-Surety)

By:_____

Title:_____

_____

_____
(Business Address of Co-Surety)

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Co-Surety)

By:_____

Title:_____

_____

_____

(Business Address of Co-Surety)

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Co-Surety)

By:_____

Title:_____

_____

_____

(Business Address of Co-Surety)

Approved as to legal form and sufficiency this

_____ day of _____ 2026

_____

Deputy City Attorney

[Note: Add lines to signature block if needed, and strike signature lines not used.]

[Note: The bond shall be signed by authorized persons. Where such persons are signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the legal entity involved, evidence of authority must be furnished.]

EXHIBIT 6E

FORM OF MULTIPLE OBLIGEE RIDER – PERFORMANCE BOND

MULTIPLE OBLIGEE

RIDER

This Rider is executed concurrently with and shall be attached to and form a part of Performance Bond No. _____ (the "Performance Bond").

WHEREAS, PRG-Potrero Properties LLC ("Non-Profit Entity") has entered into a contract with the City and County of San Francisco (the "City"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("SFMTA"), bearing the date of _____, 2026 (the "Project Agreement"), to design, build and finance the Infrastructure Facility of the Potrero Yard Modernization Project (the "Project");

WHEREAS Potrero Neighborhood Collective LLC ("Primary Obligee"), an entity duly authorized to do business in the State of California (the "State") entered into a contract (the "Project Implementation Agreement") with Non-Profit Entity bearing the date of _____, 2026 related to the performance of design and construction work in connection with the Project;

WHEREAS, on or about the _____ day of _____, 2026, Webcor Construction, LP, (hereinafter called the "Principal"), entered into a written agreement (hereinafter called the "Contract") with Primary Obligee for the Project; and

WHEREAS, Principal and the Surety have agreed to execute and deliver this Rider currently with the execution of the Performance Bond upon the conditions herein stated.

NOW, THEREFORE, the undersigned agree and stipulate that (i) Non-Profit Entity; (ii) the City and County of San Francisco, a municipal corporation acting by and through the San Francisco Municipal Transportation Agency, and (iii) U.S. Bank Trust Company, National Association, as collateral agent, shall be added to the Performance Bond as named obligees (hereinafter referred to as "Additional Obligees").

PROVIDED, HOWEVER, that the Surety shall not be liable under the Performance Bond to the Primary Obligee, the Additional Obligees, or any of them, unless the Primary Obligee, the Additional Obligees, or any of them, shall make payments to the Principal (or in the case the Surety arranges for completion of the Contract, to the Surety) strictly in accordance with the terms of said Contract as to payments and shall perform all other obligations to be performed under said Contract in all material respects at the time and in the manner therein set forth; and

PROVIDED, FURTHER that the aggregate liability of the Surety under this Performance Bond, to any or all of the obligees, as their interests may appear, is limited to the penal sum of said Performance Bond, that the Additional Obligees' rights hereunder are subject to the same defenses Principal and/or Surety have against the Primary Obligee, and that the total liability of the Surety shall in no event exceed the amount recoverable from the Principal by the Primary Obligee under the Contract; and

PROVIDED, FURTHER that the Surety may, at its option, make any payments under said Performance Bond by check issued jointly to all of the obligees; and

PROVIDED, FURTHER that in the event of a conflict between the Performance Bond and this Rider, this Rider shall govern and control. All references to the Performance Bond, either in the Performance Bond or in this Rider, shall include and refer to the Performance Bond as supplemented and amended by this Rider. Except as herein modified, the Performance Bond shall be and remains in full force and effect.

Except as herein modified, said Performance Bond No. _____ shall be and remains in full force and effect.

Signed, sealed and dated this _____ day of _____, 20___.

Attest:

(SEAL)

_____
Secretary

Webcor Construction, LP
(Name of Principal

By: _____
Title: _____

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Surety / Co-Surety)

By:_____
Title:_____

_____
_____
(Business Address of Surety / Co-Surety)

Attest:

(SEAL)

_____
Signature
Bonding Agent's Name:_____

Agent's Address:_____

_____
(Co-Surety)

By:_____
Title:_____

_____
_____
(Business Address of Co-Surety)

Attest:

_____
(Co-Surety)

(SEAL)

_____
Signature
Bonding Agent's Name:_____

By:_____
Title:_____

_____

Agent's Address:_____

_____
(Business Address of Co-Surety)

Attest:

_____
(Co-Surety)

(SEAL)

_____
Signature
Bonding Agent's Name:_____

By:_____
Title:_____

_____

Agent's Address:_____

_____
(Business Address of Co-Surety)

Approved as to legal form and sufficiency this

_____ day of _____ 2026

_____
Deputy City Attorney

[Note: Add lines to signature block if needed, and strike signature lines not used.]

[Note: The bond shall be signed by authorized persons. Where such persons are signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the legal entity involved, evidence of authority must be furnished.]

EXHIBIT 6F

FORM OF D&C CONTRACTOR GUARANTY

This Guaranty (the "**Guaranty**") is made as of _____, 2026 by Obayashi Corporation ("**Guarantor**"), a Japanese corporation organized under the laws of Japan, in favor of the City and County of San Francisco ("**City**"), a municipal corporation acting in its proprietary capacity by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), PRG – Potrero Properties LLC ("**Non-Profit Entity**" or "**NPE**"), a Delaware limited liability company whose sole member is Provident Resources Group Inc., a Georgia non-profit corporation and a tax-exempt entity under Section 501(a) of the Internal Revenue Code as an entity organized under Section 501(c)(3) of the Internal Revenue Code, and Potrero Neighborhood Collective LLC (the "**Principal Project Company**" or "**PPC**") (each a "**Beneficiary**" and collectively, the "**Beneficiaries**"), as of the date set forth on the signature page to this Guaranty, and is made with reference to the following facts:

A. City and NPE have entered into that certain Infrastructure Facility Project Agreement dated on or about the date hereof (as amended from time to time, the "**Project Agreement**") pursuant to which NPE has agreed to design, construct, and finance a transit operations facility (the "**Infrastructure Facility**") and to integrate the Infrastructure Facility and its interface with a future Housing and Commercial Component, as detailed in the Project Agreement and related contract documents (the "**Project**").

B. NPE, contemporaneously with the execution of the Project Agreement, has entered into that certain Project Implementation Agreement dated on or about the date hereof (as amended from time to time, the "**Project Implementation Agreement**") with PPX whereby the PPC will design and build the Project and perform certain support and administrative functions with respect to the financing of the Project, all as more particularly described in the Project Implementation Agreement, and perform, on behalf of the NPE, certain obligations of the NPE under the Project Agreement.

C. PPC and Webcor Construction, LP, a California limited partnership ("**D&C Contractor**") have entered into that certain _____ Contract dated on or about the date hereof (as amended from time to time, the "**D&C Contract**") pursuant to which D&C Contractor has agreed to design and construct the Project as the prime design and construction contractor of NPE and PPC. Unless the context otherwise requires, capitalized terms used but not separately defined in this Guaranty have the meaning given to them in the D&C Contract.

D. Guarantor has agreed to enter into this Guaranty to (i) induce City to enter into the Project Agreement, (ii) induce NPE to enter into the Project Agreement and the Project Implementation Agreement, (iii) induce PPC to enter into the Project Implementation Agreement and the D&C Contract, and (iv) consummate the transactions contemplated by the Project Agreement, the Project Implementation Agreement and the D&C Contract.

E. Guarantor owns and holds, directly or indirectly, an equity interest in the D&C Contractor. The execution of the Project Agreement, the Project Implementation Agreement and the D&C Contract by the parties thereto and the consummation of the transactions contemplated by the Project Agreement, the Project Implementation Agreement and D&C Contract will materially benefit Guarantor.

F. Without this Guaranty, City would not have entered into the Project Agreement with NPE, NPE would not have entered into the Project Agreement with City or the Project Implementation Agreement with PPC, and PPC would not have entered into the Project Implementation Agreement with NPE or the D&C Contract with D&C Contractor.

NOW, THEREFORE, in consideration of the foregoing Recitals and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Guarantor agrees as follows:

1. Guaranty.

1.1 Guarantor guarantees to each Beneficiary and its successors and assigns the full and prompt payment and performance when due of all of the obligations of the D&C Contractor arising out of, in connection with, under or related to the D&C Contract (including, without limitation, the D&C Contractor's obligation to pay Liquidated Damages and indemnify). The obligations guaranteed pursuant to this Guaranty are collectively referred to in this Guaranty as the "**Guaranteed Obligations**."

1.2 This Guaranty shall be effective as of the effective date of the D&C Contract, and terminates upon the later of (a) the date upon which D&C Contractor has fully performed and discharged all of its obligations under the D&C Contract (including, without limitation, all obligations during the Warranty Period); and (b) the date upon which Guarantor has fully performed and discharged all of its obligations under this Guaranty.

1.3 Guarantor covenants to each Beneficiary that if at any time the D&C Contractor should default in the performance when due of, observance when due of, or should commit a breach of, any of the Guaranteed Obligations, Guarantor shall promptly, upon written notice by any Beneficiary, perform or pay the Guaranteed Obligations or cause the performance or payment of the Guaranteed Obligations, provided, however, that the respective Beneficiary shall have no claim against the Guarantor for non-payment or non-performance of the Guaranteed Obligations to the extent, and only to the extent, that D&C Contractor is lawfully excused from performing or paying in accordance with the express terms and conditions of the D&C Contract.

1.4 In no event shall the aggregate total liability of the Guarantor under this Guaranty exceed the total amount of D&C Contractor's liability under the D&C Contract.

1.5 Guarantor agrees that, to the extent Guarantor's obligations under this Guaranty relate to obligations of D&C Contractor which require performance other than the payment of money, Beneficiaries may proceed against Guarantor to effect specific performance of such obligations (to the extent that such relief is available). Guarantor agrees to assume the D&C Contract or to procure the assumption of the D&C Contract through the substitution of another legal entity wholly-owned by the Guarantor and/or any other guarantor of the D&C Contractor's obligations or otherwise approved by City in its sole discretion, and to perform or to procure the performance of all of the terms and conditions under the D&C Contract should the D&C Contract be disaffirmed or rejected by a trustee or court in a bankruptcy proceeding involving D&C Contractor, or, at the option of any Beneficiary, Guarantor shall, in the event of D&C Contractor's bankruptcy, make and enter into or have made and entered into, by one or more entities reasonably satisfactory to Beneficiaries, new contract documents for the balance of the term of the D&C Contract, which new contract documents shall be in form and substance identical to the replaced D&C Contract.

2. Unconditional Obligations. This Guaranty is a guaranty of payment and performance and not of collection. Except as provided in Section 18 (Defenses), this Guaranty is an absolute, unconditional and irrevocable guaranty of the full and prompt payment and performance when due of all of the Guaranteed Obligations, whether or not from time to time reduced or extinguished or hereafter increased or incurred and whether or not enforceable against D&C Contractor. If any payment made by D&C Contractor or any other Person and applied to the Guaranteed Obligations is at any time annulled, set aside, rescinded, invalidated, declared to be fraudulent or preferential or otherwise required to be repaid or refunded, then, to the extent of such payment or repayment, the liability of Guarantor will be and remain in full force and effect as fully as if such payment had never been made. Guarantor covenants that this Guaranty will be fulfilled or discharged only by the complete payment and performance of the Guaranteed Obligations, whether by the D&C Contractor or Guarantor. Guarantor's obligations hereunder will not be released, discharged or otherwise affected by the existence of any claim or set-off which D&C Contractor has or Guarantor may have against any Beneficiary, whether in connection with this Guaranty or any unrelated transaction, provided that nothing in this Guaranty will be deemed a waiver by Guarantor of any claim or prevent the assertion of any claim by separate suit.

This Guaranty will in all respects be a continuing, absolute, and unconditional guaranty irrespective of the genuineness, validity, regularity or enforceability of the Guaranteed Obligations or any part thereof or any instrument or agreement evidencing any of the Guaranteed Obligations or relating thereto, or the existence, validity, enforceability, perfection, or extent of any collateral therefor or any other circumstances relating to the Guaranteed Obligations, except as provided in Section 18 (Defenses).

3. Independent Obligations. Guarantor agrees that the Guaranteed Obligations are independent of the obligations of D&C Contractor and if any default occurs under this Guaranty, a separate action or actions may be brought and prosecuted against Guarantor whether or not the D&C Contractor is joined therein. Beneficiaries may maintain successive actions for other defaults of Guarantor. Beneficiaries' rights under this Guaranty will not be exhausted by the exercise of any of its rights or remedies or by any such action or by any number of successive actions until and unless all Guaranteed Obligations have been indefeasibly paid and fully performed.

3.1 Guarantor agrees that any Beneficiary may enforce this Guaranty, at any time and from time to time, without the necessity of resorting to or exhausting any security or collateral and without the necessity of proceeding against D&C Contractor. Guarantor waives the right to require Beneficiaries to proceed against the D&C Contractor, to exercise any right or remedy under any of the D&C Contract or to pursue any other remedy or to enforce any other right.

3.2 Guarantor will continue to be subject to this Guaranty notwithstanding: (a) any modification, agreement or stipulation between D&C Contractor and NPE or their respective successors and assigns, with respect to any of the D&C Contract or the Guaranteed Obligations; (b) any waiver of or failure to enforce the Guaranteed Obligations or any of the terms, covenants or conditions contained in any of the D&C Contract or any modification thereof; (c) any release of the D&C Contractor from any liability with respect to any of the D&C Contract; or (d) any release or subordination of any collateral then held by any Beneficiary as security for the performance by D&C Contractor of the Guaranteed Obligations.

3.3 The Guaranteed Obligations are not conditional or contingent upon the genuineness, validity, regularity or enforceability of the Project Agreement or the D&C Contract

or the pursuit by Beneficiaries of any remedies which Beneficiaries either now have or may hereafter have with respect thereto under the Project Agreement or the D&C Contract.

3.4 Notwithstanding any other term or provision of this Guaranty, in the event that the D&C Contractor's obligations have been changed by any modification, agreement or stipulation between D&C Contractor and PPC or their respective successors or assigns, the term "Guaranteed Obligations" as used in this Guaranty shall mean the Guaranteed Obligations as so changed, except that the Guaranteed Obligations shall be determined without regard to the effect of any such modification, agreement or stipulation in the context of a bankruptcy or insolvency proceeding in which D&C Contractor is the debtor, unless otherwise specified in the modification, agreement or stipulation.

4. Liability of Guarantor.

4.1 Any Beneficiary may enforce this Guaranty upon the occurrence of a breach by D&C Contractor of any of the Guaranteed Obligations, notwithstanding the existence of any dispute between PPC and D&C Contractor or among some or all of City, NPE, PPC and D&C Contractor with respect to the existence of such a breach.

4.2 Guarantor's performance of some, but not all, of the Guaranteed Obligations will in no way limit, affect, modify or abridge Guarantor's liability for those Guaranteed Obligations that have not been performed.

4.3 Beneficiaries, upon such terms as they deem appropriate, without notice or demand and without affecting the validity or enforceability of this Guaranty or giving rise to any reduction, limitation, impairment, discharge or termination of Guarantor's liability under this Guaranty, from time to time may:

(a) with respect to the financial obligations of D&C Contractor, if and as permitted by the D&C Contract, renew, extend, accelerate, increase the rate of interest on, or otherwise change the time, place, manner or terms of payment of financial obligations that are Guaranteed Obligations, and/or subordinate the payment of the same to the payment of any other obligations;

(b) settle, compromise, release or discharge, or accept or refuse any offer of performance with respect to, or substitutions for, the Guaranteed Obligations or any agreement relating thereto;

(c) request and accept other guarantees of the Guaranteed Obligations and take and hold security for the payment and performance of this Guaranty or the Guaranteed Obligations;

(d) release, surrender, exchange, substitute, compromise, settle, rescind, waive, alter, subordinate or modify any security for performance of the Guaranteed Obligations, any other guarantees of the Guaranteed Obligations, or any other obligation of any Person with respect to the Guaranteed Obligations;

(e) enforce and apply any security hereafter held by or for the benefit of Beneficiaries in respect of this Guaranty or the Guaranteed Obligations and direct the order or manner of sale thereof, or exercise any other right or remedy that Beneficiaries may have against any such security, as Beneficiaries in their discretion may determine; and

(f) exercise any other rights available and as permitted under the D&C Contract.

4.4 This Guaranty and the obligations of Guarantor under this Guaranty will be valid and enforceable and will not be subject to any reduction, limitation, impairment, discharge or termination for any reason (other than indefeasible performance in full of the Guaranteed Obligations), including without limitation the occurrence of any of the following, whether or not Guarantor will have had notice or knowledge of any of them:

(a) any failure or omission to assert or enforce an agreement or election not to assert or enforce, or the stay or enjoining, by order of court, by operation of law or otherwise, of the exercise or enforcement of, any claim or demand or any right, power or remedy (whether arising under the D&C Contract, at law, in equity or otherwise) with respect to the Guaranteed Obligations or any agreement or instrument relating thereto;

(b) any rescission, waiver, amendment or modification of, or any consent to departure from, any of the terms or provisions (including without limitation provisions relating to events of default) of the Project Agreement, Project Implementation Agreement, D&C Contract or any agreement or instrument executed pursuant thereto; or

(c) Beneficiaries' knowledge of or consent to the change, reorganization or termination of the corporate structure or existence of D&C Contractor.

5. Waivers.

5.1 Guarantor waives all defenses based on suretyship or impairment of collateral. The parties intend the waiver of suretyship impairment of collateral defenses to be total and complete and, in addition to the effect provided for under the laws of the state, to have the effects described in Section 48 of the Restatement (Third) of the Law of Suretyship and Guaranty and under Article 3 of the UCC.

5.2 Without limiting the general waiver in Section 5.1, to the fullest extent permitted by law, Guarantor hereby waives and agrees not to assert or take advantage of:

(a) any right to require Beneficiaries to proceed against D&C Contractor or any other Person or to proceed against or exhaust any security held by Guarantee at any time or to pursue any right or remedy under any of the D&C Contract or any other remedy in any Beneficiary's power before proceeding against Guarantor;

(b) any defense that may arise by reason of the incapacity, lack of authority, death or disability of, or revocation hereby by Guarantor or any other Person or the failure of any Beneficiary to file or enforce a claim against the assets or estate (either in administration, bankruptcy or any other proceeding) of any such Person;

(c) any defense that may arise by reason of lack of or deficiency in any presentment, demand for payment or performance or otherwise, protest or notice of any other kind.

(d) any right or defense arising out of an election of remedies by any Beneficiary even though the election of remedies, such as nonjudicial foreclosure with respect to any security for the Guaranteed Obligations, has destroyed the Guarantor's rights of subrogation

and reimbursement against D&C Contractor by the operation of Section 580d of the California Code of Civil Procedure or otherwise;

(e) all notices to Guarantor or to any other Person, including, but not limited to, notices of the acceptance of this Guaranty or the creation, renewal, extension, modification, accrual of any of the obligations of D&C Contractor under any of the D&C Contract, or of default in the payment or performance of any such obligations, enforcement of any right or remedy with respect thereto or notice of any other matters relating thereto;

(f) any defense based upon discharge or release of any security given or held by any Beneficiary in connection with the Guaranteed Obligations;

(g) any duty on the part of any Beneficiary to disclose to Guarantor any matter, fact or thing the Beneficiary may now or hereafter know about D&C Contractor or its business, operations or conditions, regardless of whether the Beneficiary has reason to believe that any such facts materially increase the risk beyond that which Guarantor intends to assume, has reason to believe that such facts are unknown to Guarantor, or has a reasonable opportunity to communicate such facts to Guarantor. Guarantor acknowledges that it is fully responsible for being and keeping informed of the financial condition of D&C Contractor and of all circumstances bearing on the risk of non-payment of any Guaranteed Obligations;

(h) the fact that Guarantor may at any time in the future dispose of all or part of its direct or indirect ownership or economic interests in D&C Contractor;

(i) any defense it might have that liquidated damages or stipulated damages owing under the D&C Contract constitute a penalty or that they do not bear a reasonable relation to the actual damages; and

(j) any and all suretyship defenses under applicable law.

5.3 To the extent not addressed elsewhere by this Guaranty, Guarantor expressly waives any and all benefits, rights and/or defenses which might otherwise be available to Guarantor under the following sections of the California Civil Code:

(a) Section 2809 (the obligation of a surety must be neither larger in amount nor in other respects more burdensome than that of the principal)

(b) Section 2810 (a surety is not liable if, for any reason other than the mere personal disability of the principal, there is no liability upon the part of the principal at the time of execution of the contract, or the liability of the principal thereafter ceases);

(c) Section 2819 (a surety is exonerated if the creditor alters the original obligation of the principal without the consent of the surety);

(d) Section 2822 (a surety's right to have the principal designate the portion of any obligation to be satisfied by the surety in the event that the principal provides partial satisfaction of such obligation);

(e) Section 2845 (a surety is exonerated to the extent that the creditor fails to proceed against the principal, or to pursue any other remedy in the creditor's power which the surety cannot pursue and which would lighten the surety's burden);

(f) Section 2846 (a surety may compel the principal to perform the obligation when due);

(g) Section 2847 (if a surety satisfies the principal obligation, or any part thereof, the principal is obligated to reimburse the surety for the amounts paid by the surety);

(h) Section 2850 (whenever the property of a surety is hypothecated with property of the principal, the surety is entitled to have the property of the principal first applied to the discharge of the obligation);

(i) Section 2899 (where one has a lien upon several things, and other persons have subordinate liens upon, or interests in, some but not all of the same things, the person having the prior lien, if he can do so without risk of loss to himself, or of injustice to other persons, must resort to the property in a certain order, on the demand of any party interested); and

(j) Section 3433 (where a creditor is entitled to resort to each of several funds for the satisfaction of his claim, and another person has an interest in, or is entitled as a creditor to resort to some, but not all of them, the latter may require the former to seek satisfaction from those funds to which the latter has no such claim, so far as it can be done without impairing the right of the former to complete satisfaction, and without doing injustice to third persons).

5.4 To the extent not addressed elsewhere by this Guaranty, Guarantor expressly agrees not to exercise or take advantage of any rights, benefits and/or defenses which might be available to Guarantor under the following California Civil Code Sections, unless and until the Guaranteed Obligations shall have been indefeasibly paid and satisfied in full:

(a) Section 2839 (performance of the principal obligation, or an offer of such performance, duly made as provided in the California Civil Code, exonerates a surety);

(b) Section 2848 (a surety, upon satisfaction of the obligation of the principal, is entitled to enforce remedies which the creditor then has against the principal and to pursue his co-sureties or other third parties after the surety has satisfied the underlying debt, or at least more than his share of it); and

(c) Section 2849 (a surety is entitled to the benefit of security held by the creditor for the performance of the principal obligation held by the creditor).

6. Waiver of Subrogation and Rights of Reimbursement. Until the Guaranteed Obligations have been indefeasibly paid in full, Guarantor waives any claim, right or remedy which it may now have or may hereafter acquire against D&C Contractor that arises from the performance of Guarantor under this Guaranty, including, without limitation, any claim, right or remedy of subrogation, reimbursement, exoneration, contribution, or indemnification (including, without limitation, by reason of Sections 2787 to 2855, inclusive, of the California Civil Code), or participation in any claim, right or remedy of any Beneficiary against D&C Contractor, or any other security or collateral that any Beneficiary now has or hereafter acquires, whether or not such claim, right or remedy arises in equity, under contract, by statute, under common law or otherwise. All existing or future indebtedness of D&C Contractor or any shareholders, partners, members, joint venturers of D&C Contractor to Guarantor is subordinated to all of the Guaranteed Obligations until such time as all Guaranteed Obligations shall have been indefeasibly paid in full. Whenever and for so long as D&C Contractor shall be in default in the performance of a Guaranteed Obligation, no payments with respect to any such indebtedness shall be made by

D&C Contractor or any shareholders, partners, members, joint venturers of D&C Contractor to Guarantor without the prior written consent of Beneficiaries. Any payment by D&C Contractor or any shareholders, partners, members, joint venturers of D&C Contractor to Guarantor in violation of this provision shall be deemed to have been received by Guarantor as trustee for Beneficiaries.

7. Cumulative Rights. All rights, powers and remedies of Beneficiaries under this Guaranty will be in addition to and not in lieu of all other rights, powers and remedies given to Beneficiaries, whether at law, in equity or otherwise.

8. Notices.

8.1 Any communication, notice or demand of any kind whatsoever under this Guaranty shall be in writing and (a) delivered personally; (b) sent by certified mail, postage prepaid, with return receipt requested; (c) sent by a recognized overnight mail or courier service, postage prepaid, with delivery receipt requested, or (d) sent by email communication followed by a hard copy and with receipt confirmed by telephone, addressed as follows:

If to NPE:
PRG – Potrero Properties LLC
c/o Provident Resources Group Inc.
Attention: President and Chief Executive Officer
5565 Bankers Avenue
Baton Rouge, LA 70808
Phone: 225-766-3977
Email: [_]

If to PPC:
[_]
Attention: [_]
[_]
[_]
Phone: [_]
Email: [_]

If to City:
San Francisco Municipal Transportation Agency (SFMTA)
Attention: Chris Lazaro
1 South Van Ness, 8th Floor
San Francisco, CA 94103
Phone: 415-549-6572
Email: Chris.Lazaro@sfmta.com

With copies to: Office of the City Attorney
Attention: Real Estate & Finance Group
City Hall, Room 234
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4682
Phone: 415-554-3960
Email: isidro.jimenez@sfcityatty.org
Re: Potrero Yard Modernization Project

If to D&C Contractor: Webcor Construction, LP
Attention: Thomas Taylor
207 King Street, Suite 300
San Francisco, CA 94107
Phone: [ ]
Email: ttaylor@webcor.com

With copies to: Webcor Construction, LP
Attention: General Counsel
207 King Street, Suite 300
San Francisco, CA 94107
Phone: [ ]
Email: legal@webcor.com

If to Guarantor: Obayashi Corporation
Attention: Yuichiro Sakai, Senior Executive Vice President
950 Tower Lane, Suite 800
Foster City, CA 94404
Phone: 650-952-4910
Email: Yuichiro.Sakai@obayashi-usa.com

With copies to: Rogers Joseph O'Donnell, PC
Attention: Mark J. Linderman, Esq.
311 California Street, 10th Floor
San Francisco, CA 94104
Phone: 415-365-5321
Email: mlinderman@rjo.com

8.2 The Guarantor and each Beneficiary may from time to time change its address for the purpose of notices by a similar notice specifying a new address, but no such change is effective until it is actually received by the party sought to be charged with its contents.

8.3 All notices and other communications required or permitted under this Guaranty which are addressed as provided in this Section 8 are effective upon delivery, if delivered personally or by overnight mail, and, are effective five days following deposit in the United States mail, postage prepaid if delivered by mail.

9. No Waiver. Any forbearance or failure to exercise, and any delay by a Beneficiary in exercising, any right, power or remedy under this Guaranty will not impair any such right, power or remedy or be construed to be a waiver thereof, nor will it preclude the further exercise of any such right, power or remedy.

10. Assignability. This Guaranty is binding upon the successors and assigns of Guarantor and inures to the benefit of the successors and assigns of each Beneficiary, including to the Collateral Agent as security or in connection with enforcement of such security, but is not assignable by Guarantor without the prior written consent of both Beneficiaries, which consent may be granted or withheld in Beneficiaries' sole discretion. Any assignment by Guarantor effected in accordance with this Section 10 will not relieve Guarantor of its obligations and liabilities under this Guaranty.

11. Amendments. No amendment of this Guaranty shall be effective unless in writing and signed by Guarantor and both Beneficiaries, subject to the consent of the Collateral Agent under the DBC Lenders' Direct Agreement. No waiver of any provision of this Guaranty nor consent to any departure by Guarantor therefrom shall in any event be effective unless such waiver shall be in writing and signed by both Beneficiaries, subject to the consent of the Collateral Agent under the DBC Lenders' Direct Agreement. Any such waiver shall be effective only in the specific instance and for the specific purpose for which it was given.

12. Captions. The captions in this Guaranty are for convenience of reference only and do not modify, explain, enlarge or restrict any of the provisions of this Guaranty.

13. Construction of Agreement. Ambiguities or uncertainties in the wording of this Guaranty will not be construed for or against any party, but will be construed in the manner that most accurately reflects the parties' intent as of the date hereof.

14. Representations and Warranties. In addition to the representations and warranties with respect to solvency set forth in Section 16 (Bankruptcy; Post-Petition Interest; Reinstatement of Guaranty; Solvency), Guarantor represents and warrants that:

(a) it is a corporation duly organized, validly existing, and in good standing under the laws of Japan, and authorized to do business within the United States and the State of California;

(b) it has requisite corporate power and authority to execute, deliver and perform this Guaranty;

(c) the execution, delivery and performance by Guarantor of this Guaranty have been duly authorized by all necessary corporate action on the part of Guarantor and proof of such authorization will be provided with the execution of this Guaranty;

(d) this Guaranty has been duly executed and delivered and constitutes the legal, valid and binding obligation of Guarantor enforceable against Guarantor in accordance with its terms;

(e) neither the execution nor delivery of this Guaranty nor compliance with or fulfillment of the terms, conditions, and provisions hereof, will conflict with, result in a material breach or violation of the terms, conditions, or provisions of, or constitute a material default, an event of default, or an event creating rights of acceleration, termination, or cancellation, or a loss of rights under: (i) the certificate of incorporation or by-laws of Guarantor, (ii) any judgment, decree, order, contract, agreement, indenture, instrument, note, mortgage, lease, governmental permit, or other authorization, right restriction, or obligation to which Guarantor is a party or any of its property is subject or by which Guarantor is bound, or (iii) any federal, state, or local law, statute, ordinance, rule or regulation applicable to Guarantor;

(f) it now has and will continue to have full and complete access to any and all information concerning the transactions contemplated by the D&C Contract or referred to therein, and the financial status of D&C Contractor and the ability of D&C Contractor to pay and perform the Guaranteed Obligations;

(j) it has reviewed and approved copies of the D&C Contract and is fully informed of the remedies PPC may pursue, with or without notice to D&C Contractor or any other Person, in the event of default of any of the Guaranteed Obligations;

(k) it has made, and so long as the Guaranteed Obligations (or any portion thereof) remain unsatisfied it will make, its own credit analysis of D&C Contractor and will keep itself fully informed as to all aspects of the financial condition of D&C Contractor, the performance of the Guaranteed Obligations and all other circumstances bearing upon the risk of nonpayment or nonperformance of the Guaranteed Obligations;

(l) no consent, authorization, approval, order, license, certificate, or permit or act of or from, or declaration or filing with, any governmental authority or any party to any contract, agreement, instrument, lease, or license to which Guarantor is a party or by which Guarantor is bound, is required for the execution, delivery, or compliance with the terms hereof by Guarantor, except as have been obtained prior to the date of this Guaranty;

(m) there is no pending or, to the best of its knowledge, threatened action, suit, proceeding, arbitration, litigation, or investigation of or before any Governmental Entity which challenges the validity or enforceability of this Guaranty;

(n) it is not subject to any outstanding judgment, rule, writ, injunction or decree of any Governmental Entity that adversely affects its ability to perform its obligations under this Guaranty; and

(o) it derives a substantial direct or indirect economic benefit from the D&C Contract.

15. Limitation by Law. All rights, remedies and powers provided in this Guaranty may be exercised only to the extent that such exercise does not violate any applicable provision of law, and all the provisions of this Guaranty are intended to be subject to all applicable mandatory provisions of law that may be controlling and to be limited to the extent necessary so that they will not render this Guaranty invalid or unenforceable, in whole or in part.

16. Bankruptcy; Post-Petition Interest; Reinstatement of Guaranty; Solvency.

16.1 The obligations of Guarantor under this Guaranty will not be reduced, limited, impaired, discharged, deferred, suspended or terminated by any proceeding, voluntary or involuntary, involving the bankruptcy, insolvency, receivership, reorganization, liquidation or arrangement of D&C Contractor or by any defense which D&C Contractor may have by reason of the order, decree or decision of any court or administrative body resulting from any such proceeding. Beneficiaries are not obligated to file any claim relating to the Guaranteed Obligations if D&C Contractor becomes subject to a bankruptcy, reorganization, or similar proceeding, and the failure of Beneficiaries so to file will not affect Guarantor's obligations under this Guaranty.

16.2 Guarantor acknowledges and agrees that any interest on any portion of the Guaranteed Obligations which accrues after the commencement of any proceeding referred to in

Section 16.1 above (or, if interest on any portion of the Guaranteed Obligations ceases to accrue by operation of law by reason of the commencement of said proceeding, such interest as would have accrued on such portion of the Guaranteed Obligations if said proceedings had not been commenced) will be included in the Guaranteed Obligations. Guarantor will permit any trustee in bankruptcy, receiver, debtor in possession, assignee for the benefit of creditors or any similar person to pay Beneficiaries, or allow the claim of any Beneficiary in respect of, any such interest accruing after the date on which such proceeding is commenced.

17. Governing Law. The validity, interpretation and effect of this Guaranty are governed by and will be construed in accordance with the laws of the State of California applicable to contracts made and to be performed in such State and without regard to conflicts of law doctrines except to the extent that certain matters are preempted by Federal law. Guarantor consents to the jurisdiction of the State of California with regard to this Guaranty. The venue for any action regarding this Guaranty shall be the City and County of San Francisco, California.

18. **Defenses**. Notwithstanding any other provision to the contrary, Guarantor shall be entitled to the benefit of all defenses available to the D&C Contractor under the D&C Contract except (a) those expressly waived in this Guaranty, (b) failure of consideration, lack of authority of the D&C Contractor and any other defense to formation of the D&C Contract, and (c) defenses available to the D&C Contractor under any federal or state law respecting bankruptcy, arrangement, reorganization or similar relief of debtors.

19. Attorneys' Fees. Guarantor agrees to pay to each Beneficiary reasonable attorneys' fees and all costs and other expenses (whether by lawsuit or otherwise, and including, without limitation, such fees and costs of litigation, arbitration and bankruptcy, and including, without limitation, appeals) incurred by each Beneficiary in enforcing, collecting or compromising any Guaranteed Obligation or enforcing or collecting this Guaranty against Guarantor or in attempting to do any or all of the foregoing.

20. Joint and Several Liability. If the Guarantor is comprised of more than one individual and/or entity, such individuals and/or entities, as applicable, shall be jointly and severally liable for the Guaranteed Obligations. If more than one guaranty is executed with respect to D&C Contractor and the Project, each guarantor under such a guaranty shall be jointly and severally liable with the other guarantors with respect to the obligations guaranteed under such guaranties.

21. Entire Agreement. This Guaranty contains the entire agreement of Guarantor with respect to the transactions contemplated hereby, and supersedes all negotiations, representations, warranties, commitments, offers, contracts and writings prior to the date hereof, written or oral, with respect to the subject matter hereof. No waiver, modification or amendment of any provision of this Guaranty is effective unless made in writing and duly signed by Guarantor and each Beneficiary, and then only to the specific purpose, extent and interest so provided.

22. Severability. If any clause, provision, section or part of this Guaranty is ruled invalid by a court having proper jurisdiction, it will be adjusted rather than voided, to achieve the intent of the parties, and all of the provisions deemed unenforceable will be deemed valid and enforceable to the greatest extent possible.

23. Guarantor Acknowledgements. Guarantor acknowledges having read all of the provisions of this guaranty and agrees to its terms. Guarantor agrees that no formal acceptance by beneficiaries is necessary to make this guaranty effective.

IN WITNESS WHEREOF, Guarantor has executed this Guaranty, and it is effective, as of the date first written above.

OBAYASHI CORPORATION ,
a Japanese corporation

By: _____
Name: _____
Title: _____

EXHIBIT 7

INSURANCE REQUIREMENTS

Non-Profit Entity shall obtain and keep in force, or cause to be obtained and kept in force, the following policies of insurance, in accordance with the terms of this Exhibit 7. Each policy shall be obtained and be effective as set forth below. Each policy shall contain, or be endorsed to contain, a provision that coverage cannot be canceled, voided, suspended, lapsed or modified or reduced in coverage except for 60 days' (or for non-payment of premium, 10 days') prior written notice has been given to City.

1. Insurance during the Design and Construction Period and Through the Warranty Period

As a condition precedent to Financial Close and issuance of NTP 1, Non-Profit Entity shall obtain and keep in force, or cause to be obtained and kept in force, from and after the Financial Close Date and throughout the D&C Period and until the expiration of the Warranty Period, the following insurance coverage.

1.1. Worker's Compensation and Employer's Liability. Worker's compensation and employer's liability insurance for Non-Profit Entity and Contractors as required by applicable Law, and employer's liability insurance having coverage limits of $1,000,000 for each accident, $1,000,000 for disease (each employee), and $1,000,000 for disease (policy limit). Policies shall contain a voluntary compensation endorsement; an alternative employer endorsement; and on an "if any" basis, endorsements providing coverage for all states, U.S. Longshore and Harbor Workers' Act, Jones Act and Federal Employer's Liabilities Act.

1.2. Commercial General Liability. A commercial general liability insurance policy, written on an occurrence basis and covering liabilities arising out of the construction of the Project. Coverage shall be at least as broad as the broadest available version of Insurance Services Office form CG 00 01. This insurance policy shall:

(a) have a limit for any one occurrence of not less than $2,000,000 per occurrence, a $4,000,000 general aggregate with one reinstatement during the D&C Period, and a $4,000,000 completed operations aggregate, applicable solely to the construction of the Project;

(b) have no "contractor's limitation" endorsements, as that term is defined, as of the date of this Agreement, in the Glossary of Insurance and Risk Management Terms published by the International Risk Management Institute, that have not been reviewed and approved by the City. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability assumed under an insured contract;

(c) have no exclusion for professional services except the latest ISO form CG 22 79 or CG 22 80 or both;

(d) include products and completed operations liability coverage for a period of not less than the California Statute of Repose which is currently 10 years following Final Completion or the Termination Date, whichever occurs later; and

(e) be maintained throughout the Term until expiration of the Warranty Period.

The City, SFMTA, and San Francisco Board of Supervisors and their employees, officers, and officials shall be added to the primary policy as insureds using Insurance Services Office forms CG 20 10 10 01 and CG 20 37 10 01 or, in City's sole discretion, forms providing the same scope of coverage, including coverage for completed operations. The policy shall provide for separation of insureds. The policy shall contain no insured vs. insured exclusion. Non-Profit Entity shall require its Contractors to have these additional insureds included as insureds in the same manner as specified for Non-Profit Entity in this Section 1.2 (Commercial General Liability), and shall prohibit use of any endorsement forms that require, to effect additional insured status, the execution or existence of any contract directly between such Contractors and any of the additional insureds. Exclusions are prohibited for work within 50 feet of a railroad. For use of any unmanned aircraft vehicles (UAV), any Non-Profit Entity-Related Entity may provide insurance either through an aircraft liability insurance policy, or by endorsement to the entity's commercial general liability insurance policy and excess liability policies, which shall be not less than $10,000,000 per occurrence.

1.3. Commercial Excess Liability. A policy or policies of commercial umbrella/excess liability insurance covering bodily injury, property damage, personal injury and advertising injury with an annual reinstatement of limits of not less than $100,000,000 per occurrence and general aggregate. There shall also be a project-specific products and completed operations aggregate of not less than $100,000,000. Coverage may be arranged in any combination or structure so that total required limits of liability are met. Coverage must apply as excess over commercial general liability insurance as required in Section 1.2 (Commercial General Liability), and may apply as excess over commercial automobile liability insurance and employer's liability insurance. Umbrella/excess liability policies shall follow form to all underlying policies, including coverage in the excess liability policies for insureds covered under the primary policies.

1.4. Commercial Automobile Liability. Commercial automobile liability insurance with limits of liability of not less than $20,000,000 combined single limit for Non-Profit Entity and Key Contractors. The required limits can be met in any combination of primary and excess/umbrella liability policies. Coverage shall be at least as broad coverage provided in Insurance Services Office form CA 00 01. The insurance must cover "any auto" ("**Symbol 1**"). If Non-Profit Entity or any Contractor's activities involve transportation of materials (including Hazardous Materials) that require endorsement MCS 90 (as described below), the automobile liability Insurance Policy for Non-Profit Entity or such Contractor shall be endorsed to include for private, non-commercial vehicles Motor Carrier Act Endorsement- Hazardous Materials Clean up (MCS-90) and shall be endorsed to provide coverage for liability arising from release of pollutants (CA 99 48 – Pollution Liability – Broadened Coverage for Covered Autos – Business Auto, Motor Carrier and Truckers Coverage Form).

1.5. Contractor's Pollution Liability. Contractor's pollution liability insurance written on an occurrence form with a limit for any one occurrence of not less than $20,000,000 and a policy aggregate limit of $20,000,000. The policy must be written on an occurrence basis and not on a "claims made" form. The policy must include coverage to extend to the full California statue of repose, which is currently 10 years.

The policy shall cover sums that the insured becomes legally obligated to pay to a third party or for the investigation, removal, remediation (including associated monitoring) or disposal of soil, surface water, groundwater or other contamination to the extent required by environmental laws (together "**clean-up costs**") caused by pollution conditions resulting from

covered operations, subject to the policy terms and conditions, including bodily injury, property damage (including natural resource damages), clean-up costs, and legal defense costs. Such policy shall cover claims related to pollution conditions to the extent such are caused (a) by the performance of Work, (b) by transportation, including loading and unloading, by owned and non-owned vehicles and/or (c) by other activities performed by or on behalf of Non-Profit Entity that occur on the Project. The policy shall have no exclusions or limitations for loss occurring over water including but not limited to a navigable waterway. Coverage shall apply to sudden and non-sudden pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, waste materials, or other irritants, contaminants, or pollutants. The policy shall contain a severability provision.

1.6. Professional Liability Insurance. Professional liability insurance, in one or more policies, at Non-Profit Entity's discretion, which shall:

(a) cover claims for liability for providing Design Work for the Project;

(b) cover claims for liability for providing Design Work by any Contractor;

(c) be in an amount not less than $20,000,000 per claim and in the aggregate;

(d) have a deductible or self-insured retention no greater than $1,000,000 unless approved by the City;

(e) cover the performance of Design Work or other professional services in connection with the Project (except Design Work that results in the provision of a product) and shall be fully retroactive to the first date any such Design Work was performed, with no exclusion for prior acts applying to any pre-award professional services provided by any insured; and

(f) have an extended reporting period, or be renewed to be continuous for a period, of not less than ten years after the Effective Date.

1.7. Builder's Risk. A builder's risk insurance policy covering all real property at the Project Site, during testing and commissioning, while in transit and at any temporary off-site location; including all materials, supplies, machinery, fixtures and equipment intended to become a permanent part of the Project or for permanent use in the Project. Property that is incidental to the construction; foundations, including pilings, but excluding normal settling, shrinkage, or expansion. All temporary structures at the Project Site that are to be used in or incidental to the fabrication, erection, testing, or completion of the Project shall be insured and declared to and approved by the insurers and to the extent the cost thereof is included in the Work, included in the coverage while on or about the Project Site awaiting or during construction. The builder's risk policy:

(a) shall be obtained prior to the start of construction and maintained until the end of the D&C Period;

(b) shall be in an amount not less than the estimated completed value of the Project or other such amount as may be agreed up on by Non-Profit Entity and the City;

(c) shall be written on an "all risk," replacement cost basis with no coinsurance clauses or penalties;

(d) during any period of exposure to loss of property in transit, shall cover transit, including ocean marine (unless insured by the Supplier or through a separate marine cargo policy), with sub-limits sufficient to insure the maximum value of any property in transit at any one time;

(e) shall cover physical damage arising because of faulty workmanship or materials;

(f) shall cover ensuing loss from design error not otherwise excluded (LEG 3);

(g) shall cover water damage and flood, (including the overflow of inland or tidal waters, the unusual accumulation or runoff of surface waters from any source, or mudslides or mudflows which are caused by flooding) with a sublimit of no less than $10,000,000;

(h) shall cover physical damage resulting from machinery accidents but excluding normal and natural wear and tear, corrosion, erosion, inherent vice or latent defect in the machinery;

(i) shall cover demolition and debris removal coverage, with a sublimit of 20% of the loss or no less than $10,000,000 insuring the buildings, structures, machinery, equipment, materials, facilities, fixtures and all other properties constituting a part of the Project;

(j) shall cover increased cost for repair, rebuilding or reconstruction of damaged property due to enforcement of any law or ordinance with a sublimit of no less than $20,000,000, including professional fees with a sublimit of no less than $10,000,000;

(k) shall include a sublimit for soft costs to include recurring costs should there be physical damage to the project, delay costs, loss of revenues during a delayed opening, including architects and engineers fees, and owner's extended project costs including administration and overhead during a restoration period of 12 months,

(l) shall include civil authority ingress and egress;

(m) shall cover plans, blueprints and specifications;

(n) shall cover full collapse, including collapse resulting from design error, as set forth in LEG3 coverage;

(o) shall include as named insureds City, SFMTA, Non-Profit Entity, and Contractors;

(p) shall not include "as their interests may appear" language pertaining to insureds;

(q) shall include a blanket waiver of subrogation as required by contract; and

(r) may include deductibles, but such deductible shall not exceed $1,000,000 per occurrence unless prior approval from the City.

1.8. Railroad Protective Liability. If required by any railroad, a railroad protective liability insurance policy or policies as required by one or more railroads operating near or

adjacent to the Project location. The terms, limits, and specifications of such policy(ies) are set forth by each railroad.

1.9. Other. Any other form of insurance and with such limits, in such form, in amounts and for risks as the City or SFMTA, acting reasonably, may require from time to time. Non-Profit Entity's compensation shall be adjusted to reflect the cost of any such additionally required insurance.

EXHIBIT 8

DAILY DELAY COST AMOUNT

Duration	Period	Daily Delay Cost Amount
NTP 1 Until Demolition Commencement	1	$20,000
Demolition Commencement Until First Tower Crane Erected and Assembled at Project Site	2	$33,000
First Tower Crane Erected and Assembled at Project Site Until Last Tower Crane Disassembled and Demobilized	3	$50,000
Last Tower Crane Disassembled and Demobilized Until Receipt of Temporary Certificate of Occupancy	4	$33,000
Receipt of Temporary Certificate of Occupancy Until Substantial Completion Date	5	$16,000
After Substantial Completion Date	6	$0

NOTES

- Demolition Commencement (Period 2) shall be deemed to occur when Non-Profit Entity has: (i) obtained all Regulatory Approvals required to commence demolition; (ii) established site access, laydown areas, and temporary facilities for the demolition; (iii) mobilized and made operational the equipment necessary to prosecute demolition Work; (iv) assigned and scheduled crews to the initial demolition Work areas and such crews are at the Project Site and ready to commence the demolition Work; and (v) issued a two-week look-ahead showing continuous demolition production on the approved Project Schedule.

EXHIBIT 9

CHANGE PROCEDURES

1. City Change Procedures

1.1 The provisions of this Section 1 (City Change Procedures) and of Section 2 (Unilateral Change Orders) shall apply with respect to any City Change.

1.2 If City desires to initiate or evaluate whether to initiate a City Change, then City may issue a proposed Change Order (a "**Proposed Change Order**"). The Proposed Change Order shall state the nature, extent and details of the contemplated City Change.

1.3 Response to Proposed Change Order

1.3.1 As soon as possible, and in any case, within 20 days after City delivers to Non-Profit Entity a Proposed Change Order, Non-Profit Entity shall deliver to City a change proposal ("**Change Proposal**") prepared in accordance with this Section 1.3 (Response to Proposed Change Order). Except as expressly set forth in this Section 1.3.1, the obligation of Non-Profit Entity to provide a Change Proposal is not Extra Work and shall not entitle Non-Profit Entity to any additional compensation, time extension or other relief. Upon receipt of a Proposed Change Order from City, if Non-Profit Entity believes it will incur substantial additional design costs to prepare a Change Proposal, Non-Profit Entity, within 10 days of the receipt of the Proposed Change Order, provide Notice to City setting forth the reasonable additional design costs that Non-Profit Entity will incur to prepare such Change Proposal. Failure to provide such Notice within such 10 day period shall forfeit any Claim for payment for such design costs. Upon delivery of such Notice by Non-Profit Entity, Non-Profit Entity shall promptly meet with City, at City's request, to explain and discuss such potential costs and such discussions and negotiations shall occur on an Open Book Basis. City, in its sole discretion, may agree to compensate Non-Profit Entity for such specified and approved reasonable additional design costs as Extra Work Costs, in which case, Non-Profit Entity shall proceed with the Change Proposal as required in the Contract Documents. Payment of such approved amounts shall be the sole compensation to Non-Profit Entity and no other compensation, time extension or other relief shall be available or provided. Should City elect, in its sole discretion, to not approve such potential costs, the Proposed Change Order shall be deemed withdrawn. The Parties agree that the foregoing payment of reasonable additional design costs for preparation of a Change Proposal shall only apply to unusual circumstances involving substantial design and substantial additional design costs.

1.3.2 Each Change Proposal shall include:

(a) a detailed explanation of how the contemplated City Change would impact both the D&C Work ;

(b) if the Proposed Change Order is issued before Substantial Completion, a detailed description of any suggested adjustments to the Project Schedule. This includes changes to any Contract Deadline that would be necessary because of potential delays caused by implementing the contemplated City Change;

(c) if adjustments to any Contract Deadline are suggested:

(i) a time impact analysis that identifies Critical Path impacts (including activity numbers, durations, predecessor and successor activities, resources, costs and impact, if any, on Float). The time impact analysis must show how schedule changes or disruptions would affect the Contract Deadlines while complying with the requirements of Section 1.2.6 of Division 1 of the Technical Requirements;

(ii) an assessment of the feasibility of accelerating the Work to meet the original deadline or to reduce the total delay period; and

(iii) if acceleration is feasible, an estimate of the cost to accelerate, as well as information about any Extra Work Costs, Financing Delay Costs, and Delay Costs, if any, payable by City if the schedule is not accelerated;

(d) a detailed, itemized estimate of any applicable Extra Work Costs, Financing Delay Costs or Delay Costs claimed; Non-Profit Entity shall provide all information on an Open Book Basis as specified in Exhibit 13 (Costs Schedule);

(e) an estimate of the cost savings, if any, resulting from the contemplated City Change, including reductions in direct labor, material and equipment, site overhead and home office overhead, operations and maintenance, and financing costs;

(f) where relief from obligations under the Contract Documents is sought, the effect of the contemplated City Change on Non-Profit Entity's ability to perform any of its obligations under the Contract Documents that if not performed would result in the accrual of Noncompliance Points, the assessment of Deductions or the occurrence of a NPE Default, in each case including details of the relevant obligations, the effect on each such obligation, the likely duration of that effect and the specific relief sought;

(g) a description of any additional consents or approvals required, including amendments, if any, of any Regulatory Approvals required to implement the contemplated City Change;

(h) a detailed description of the steps Non-Profit Entity will take to implement the contemplated City Change, including measures that Non-Profit Entity will take to mitigate the costs, delay and other consequences of the contemplated City Change; and

(i) any other relevant information related to the contemplated City Change.

1.4 Negotiation of Change Order

1.4.1 Following City's receipt of Non-Profit Entity's Change Proposal and City's further assessment of the cost, schedule and other impacts of the contemplated City Change, City and Non-Profit Entity, shall engage in good faith negotiations to reach agreement on the terms of a change order, including any Extra Work Costs, Financing Delay Costs or Delay Costs, adjustment of the Contract Deadlines or other relief to which Non-Profit Entity is entitled, and any net cost savings and schedule savings to which City is entitled.

1.4.2 City may, by written Notice, modify or abandon a contemplated City Change at any time prior to the Parties reaching an agreement on the Change Order. Non-Profit Entity will, as soon as practicable but in no event more than 10 Business Days after receipt of a modification, provide Notice to City of any subsequent changes to the Change Proposal.

1.4.3 A City Change will become effective upon mutual execution of a written change order (a "**Change Order**"). The Change Order shall be in a form provided by City, and shall specify, as applicable, the timing and method for payment or deduction of any Extra Work Costs, Financing Delay Costs, Delay Costs or Financing Costs, or for realizing any net savings in the cost of the Work.

1.5 Disagreement on Change Proposal

If the Parties do not agree on a Change Proposal, then City may seek to resolve any points of disagreement through the Contract Dispute Procedures without issuing a Unilateral Change Order, or City may issue a Unilateral Change Order.

2. Unilateral Change Orders

2.1 City may, at any time, in its sole discretion, issue a Unilateral Change Order to Non-Profit Entity regarding any matter for which a Change Order can be issued or, in the event of any Contract Dispute, regarding the scope of the Work or whether Non-Profit Entity has performed the Work in accordance with the requirements of the Contract Documents (a "**Unilateral Change Order**"). The Unilateral Change Order will state that it is issued under this Section 2 (Unilateral Change Orders), will describe the Work to be performed and will state the basis for determining compensation, if any, and schedule adjustment, if any. The Unilateral Change Order will either: (a) direct Non-Profit Entity to implement a City Change; or (b) state that disputed Work is within Non-Profit Entity's original scope of Work or is necessary to comply with the requirements of the Contract Documents.

2.2 If the Unilateral Change Order does not state that the Work constitutes a City Change, Non-Profit Entity shall proceed with the Work as directed but may assert a Claim that a City Change has occurred under the procedures in Article 12 (City Change Process; Unilateral Change Orders; Deviations) of this Agreement.

2.3 If the Unilateral Change Order provides for the implementation of a City Change, Non-Profit Entity shall, within 21 Business Days after the issuance of the Unilateral Change Order, deliver to City a Change Proposal in accordance with Section 1.3 (Response to Proposed Change Order) of this Exhibit 9 (Change Procedures), and the Parties shall subsequently follow the procedures and provisions set forth in Section 1.4 (Negotiation of Change Order) of this Exhibit 9 (Change Procedures).

2.4 If the Unilateral Change Order provides for the implementation of a City Change or Non-Profit Entity intends to assert a Claim under Section 2.2, Non-Profit Entity shall maintain records for such Work in accordance with Section 2.2.9 of Exhibit 13 (Costs Schedule), pending resolution of the Contract Dispute or execution of a Change Order.

2.5 The fact that a Unilateral Change Order was issued by City shall not be considered evidence that a City Change has occurred. The determination whether a City Change has occurred shall be based on an analysis of the original requirements of the Contract Documents and a determination as to whether the Unilateral Change Order in fact constituted a change in those requirements.

3. Non-Profit Entity Change Requests

3.1 Non-Profit Entity may, at any time, request a Change by submitting to City a written request for a Change ("**NPE Change Request**"). NPE Change Requests must comply with the requirements of Section 1.3.2 of this Exhibit 9 (Change Procedures) and be in a form approved by the City.

3.2 City has the sole discretion to accept or reject any NPE Change Request. If the City accepts a NPE Change Request, Non-Profit Entity shall execute a Change Order and implement the proposed change in accordance with the Change Order, applicable Technical Requirements, the Project Management Plan, Good Industry Practice and all applicable Law. Acceptance is only valid when documented in a written Change Order signed by City's Authorized Representative or their designee appointed in writing.

3.3 If City accepts a NPE Change Request, Non-Profit Entity shall be solely responsible for bearing any increase in the Extra Work Costs or other costs, and any additional risks that result from the accepted Change, except as may otherwise be provided in the Change Order. Non-Profit Entity shall not be entitled to any extension of the Project Schedule or any Contract Deadline due to delays or other impacts that result from the City accepting the NPE Change Request, except as may otherwise be provided in the Change Order.

3.4 If a NPE Change Request accepted by City results in a net cost savings to Non-Profit Entity, City will be entitled to 50% of such savings. City will obtain its share of the savings in the manner described in Section 1.4.3 and otherwise in accordance with Exhibit 13 (Costs Schedule).

Certain minor changes to the Technical Requirements without significant cost savings may be approved in writing by City as Deviations, and in such event, shall not require a Change Order. Any other change in the requirements of the Contract Documents shall require a Change Order (if relating solely to the scope of Work and/or Technical Requirements) and/or an amendment to the applicable Contract Documents (if relating to any provision of the Contract Documents, other than the Technical Requirements, or any other commercial term).

EXHIBIT 10

INITIAL DESIGNATION OF AUTHORIZED REPRESENTATIVES

City Representative:]

Chris Lazaro, Project Director
San Francisco Municipal Transportation Agency
1 South Van Ness, 8th Floor
San Francisco, CA 94103
Attn: Chris Lazaro
Email: Chris.Lazaro@sfmta.com
Telephone: 415-549-6572

Non-Profit Entity Representative:

[NAME], [TITLE]
[ADDRESS]
Email:_____
Telephone: [_____]

EXHIBIT 11

SUBMITTALS REVIEW PROCESS

1. Submittal Requirements

Each Submittal provided by Non-Profit Entity to City for information, review and comment, review and acceptance or approval shall:

(a) be accurate, complete and in conformity with the Contract Documents;

(b) include a completed transmittal form in form agreed between City and Non-Profit Entity; and

(c) include all necessary information and documentation concerning the subject matter and any additional information reasonably requested by City.

2. Submittal Types and Time Periods

2.1 Submittals provided by Non-Profit Entity to City will consist of the following types:

(a) Submittals for information. Submittals for City information do not include any deadline for City to respond. City may provide comments at any time or not at all.

(b) Submittals for review and comment. For any Submittal subject to review and comment, City may respond at any time or not all. Non-Profit Entity is only required to resubmit a Submittal if City responds within 14 days. City responses include: (i) reviewed with no comments; (ii) reviewed with comments, resubmittal not required; or (iii) reviewed with comments, resubmittal required. Submittals are subject to City's review and comment unless either the Contract Documents or the City-accepted Submittal Schedule contemplates a different type of review.

(c) Submittals for review and acceptance. For any Submittal subject to City review and acceptance, City will have 21 days to respond. City responses include: (i) reviewed and accepted; (ii) reviewed and accepted with comments, resubmittal not required; or (iii) reviewed and not accepted with comments, resubmittal required.

(d) Submittals for approval. For any Submittal subject to City approval, City will have 21 days to respond. City responses include: (i) approved; (ii) approved with comments, resubmittal not required; or (iii) not approved with comments, resubmittal required.

2.2 If any other provision of the Contract Documents expressly provides a longer or shorter period for City to act in response to a specific Submittal, then such period shall prevail over the time periods set forth in Section 2.1.

2.3 The Parties shall agree in good faith upon any necessary extensions of the review period to accommodate particularly complex or comprehensive Submittals.

2.4 If the number of Submittals delivered simultaneously to City exceeds the limits specified in Section 1.3 of Division 1 of the Technical Requirements, then City may extend the applicable period for it to act with respect to such Submittals to allow City a reasonable period to respond, and no such extension shall constitute a City-Caused Delay Event or other basis for any Claim. Submittals are considered "delivered simultaneously" if the review time periods available to City under this Article 2 (Submittal Types and Time Periods) for two or more Submittals entirely or partially overlap.

2.5 Whenever City is in receipt of Submittals delivered simultaneously, Non-Profit Entity may provide Notice to City including a requested order of priority for processing such Submittals. Upon receipt of such Notice, City will use reasonable efforts to accommodate the requested order of priority; provided, however, that City will not be obligated to shorten the review times otherwise applicable under this Article 2 (Submittal Types and Time Periods).

2.6 All time periods for City to act under this Article 2 (Submittal Types and Time Periods) shall be extended by the period of any delay in City's review caused by any Delay Event or any NPE Fault.

2.7 During any time that City is entitled to increase the level of its Oversight under Section 15.5 (Persistent NPE Default and Increased Oversight) of this Agreement, the applicable period for City to act on any Submittals received during such time and not related to addressing events that instigated the Section 15.5 (Persistent NPE Default and Increased Oversight) of this Agreement action shall be extended as reasonably needed due to the increased level of Oversight, but not to exceed an additional 10 Business Days per Submittal. No such extension shall constitute a City-Caused Delay Event or other basis for any Claim.

2.8 Non-Profit Entity may, by Notice to City, request expedited action on a specific Submittal. City has no obligation to expedite any Submittal but upon receipt of such a request will use reasonable efforts to accommodate such request within the practical limitations (a) on availability of City personnel relevant to the request or (b) imposed by restrictions upon City's rights under agreements with Third Parties and Utility Owners. However, City's obligation to use reasonable efforts to accommodate such a request shall not apply with respect to the review periods described in Section 2.7.

3. City Actions Relevant to Submittals

If a Submittal is subject to City's acceptance or approval, Non-Profit Entity may not proceed without receiving City's acceptance or approval, as applicable.

4. City Objection, Rejection Binding

4.1 Any exception, objection, rejection, non-acceptance or disapproval by City shall be deemed reasonable if, among other reasons, the determination is based on any of the following grounds:

(a) the Submittal or subject provision fails to comply, or is inconsistent, with any applicable Standards and Specifications or any covenant, condition, requirement, term or provision of the Contract Documents, Project Management Plan;

(b) the Submittal or subject provision does not at a minimum meet Good Industry Practice;

(c) Non-Profit Entity has not provided all necessary information and documentation concerning the subject matter and any additional information reasonably requested relating to the Submittal (provided that Non-Profit Entity may subsequently resubmit the Submittal with the required or reasonably requested content or information); or

(d) adoption of the Submittal or subject provision, or of any course of action proposed in the Submittal, would result in a conflict with or violation of any Law or Regulatory Approval.

4.2 Non-Profit Entity shall respond in writing to all of City's comments (including any exceptions, objections, rejections and disapprovals) relating to a Submittal, and subject to Sections 2.1(a) and (b), shall make modifications to the Submittal as necessary to fully reflect and resolve all such comments in accordance with the review processes in this Exhibit 11 (Submittals Review Process), prior to executing the Work identified in the Submittal.

4.3 If Non-Profit Entity does not accommodate or otherwise resolve any City comment, Non-Profit Entity shall, within 10 Business Days after receipt of City's comments, provide an explanation setting out:

(a) why modifications based on City's comments are not required;

(b) the facts, analyses and reasons that support Non-Profit Entity's conclusion; and

(c) the basis for any belief that incorporating City's comments or resolving exceptions, objections, rejections or disapprovals that would render the Submittal erroneous, defective or reflective of less than Good Industry Practice.

4.4 Promptly following delivery of Non-Profit Entity's explanation under Section 4.3, Non-Profit Entity shall meet with City with the goal of reaching agreement regarding changes to be made to the Submittal. City may at any time issue a Unilateral Change Order, in which case Non-Profit Entity shall proceed in accordance with City's Unilateral Change Order with the right to seek resolution of the Contract Dispute under the Contract Dispute Procedures.

4.5 If Non-Profit Entity fails to provide an explanation to City in accordance with Section 4.3, City may deliver to Non-Profit Entity a Notice setting out comments that have not been addressed and relevant dates for Non-Profit Entity to respond. If Non-Profit Entity fails to address such comments by the dates specified by City, Non-Profit Entity shall make all changes necessary to accommodate and resolve the comment and will be fully responsible for such changes without right to assert a City-Caused Delay Event or other basis for a Claim that City has assumed design or other liability.

EXHIBIT 12

INTENTIONALLY OMITTED

EXHIBIT 13

COSTS SCHEDULE

1.0 Overview and General Principles

1.1 This Exhibit 13 (Costs Schedule) describes the methods for calculating:

(A) Extra Work Costs, Delay Costs, and Financing Delay Costs owing from City to Non-Profit Entity pursuant to Article 12 (City Change Process; Unilateral Change Orders; Deviations) and Article 14 (Compensation and Other Relief for Delay Events) of this Agreement; and

(B) Any other amount expressly payable by City or Non-Profit Entity under this Agreement.

1.2 The following general principles apply to Extra Work Costs, Delay Costs, and Financing Delay Costs calculated under this Exhibit 13 (Costs Schedule):

(A) Non-Profit Entity shall provide all information referred to in this Exhibit 13 (Costs Schedule) or Exhibit 9 (Change Procedures) on an Open Book Basis;

(B) All payments or deductions made by City to Non-Profit Entity in accordance with this Exhibit 13 (Costs Schedule) will be made as and when incurred or in arrears in accordance with Section 7.0 (Form of Timing of Compensation) or as otherwise expressly provided under this Agreement;

(C) In calculating Extra Work Costs, Delay Costs, and Financing Costs, the time value of money and timing of cash flows shall be accounted for. This means cash flows, whether they are costs incurred or payments received, shall be discounted or inflated to reflect when they occur (if applicable);

(D) Extra Work Costs shall not include Delay Costs or Financing Delay Costs; and

(E) No amounts shall be double counted.

1.3 Non-Profit Entity's recovery for any Extra Work Costs, Delay Costs, and Financing Delay Costs under this Exhibit 13 (Costs Schedule) is subject to Non-Profit Entity complying with the timeframes specified in Article 14 (Compensation and Other Relief for Delay Events), and Exhibit 9 (Change Procedures) as applicable, and otherwise in accordance with this Agreement.

2.0 Extra Work Costs

2.1 Methods of Determining Extra Work Costs

Extra Work Costs, payable in accordance with Article 14 (Compensation and Other Relief for Delay Events) or Exhibit 9 (Change Procedures) of this Agreement, shall be determined using the following methods:

(A) negotiated lump sum;

(B) unit prices; or

(C) Force Account.

Each method is described below.

2.2 Negotiated Lump Sum

If the City determines in its good faith discretion, Extra Work Costs will be determined on a negotiated lump sum basis. Subject to the City's right to issue a Unilateral Change Order, lump sum costs of Extra Work, negotiated and agreed with Non-Profit Entity shall be based on the direct costs to perform the Extra Work, as follows:

2.2.1 Direct Costs. The City will pay Non-Profit Entity the sum of the direct costs of labor, materials, and equipment used to perform Extra Work as follows:

(A) Labor. The directs costs of labor for workers that actually perform Extra Work. Such workers include superintendents and supervisory foremen only if they are at the Project Site planning, coordinating, or overseeing Extra Work. With respect to any material changes to the scope and nature of D&C Work that is covered through an Allowance, such workers may also include additional D&C Contractor project supervisory personnel (e.g., project managers and project engineers) directly involved in planning, coordinating, or overseeing such Extra Work, to the extent reasonably required in order to perform such expanded Allowance-related D&C Work. All other supervision costs shall be included in the markup defined in Section 2.2.3 (Markup for Overhead and Profit). Whether the employer is Non-Profit Entity, a Contractor, a lower tier Contactor, or other forces, the direct cost of labor is the sum of the following:

(1) Actual Wages. The actual wages paid, including any actual payments by the employer for its workers' health and welfare, pension, vacation, training, and similar purposes.

(2) Labor Surcharge. The applicable labor surcharges in the California Department of Transportation's Labor Surcharge and Equipment Rental Rates publication in effect on the date the Extra Work is completed. These labor surcharges shall constitute full compensation for employer's payment of workers' compensation insurance, Social Security, Medicare, state and federal unemployment insurance, and state training taxes. City will not pay any other fixed labor burdens unless approved in writing by the City.

(3) Subsistence and Travel Allowance. The actual allowance paid to workers for subsistence and travel.

(B) Materials. The direct costs of materials required and furnished specifically for Extra Work. This includes only the direct expenditure, including sales tax, borne by the purchaser from the Supplier and any transportation expenses (e.g., shipping fees, freight charges), except delivery charges unless specifically

required for the Extra Work. If a genuine Supplier offers a trade discount to purchaser, Non-Profit Entity shall credit the City with this discount, even if the discount was not originally taken. If materials originate from a Supplier wholly or partially owned by a NPE-Related Entity, the City's payment therefor shall not exceed the current wholesale price, as determined by the City. The term "trade discount" includes the concept of cash discounting.

(C) Equipment. The direct costs of equipment are the applicable rental rates for equipment in the California Department of Transportation's Labor Surcharge & Equipment Rental Rate Book (including its supplement Miscellaneous Equipment Rental Rates) in effect on the date the Extra Work is completed.

(1) As deemed appropriate, the City may adjust such rental rates and use them to compute payments for equipment, regardless of whether the equipment is under the control of a NPE-Related Entity through direct ownership, leasing, renting, or other method of acquisition; except that, for equipment rented or leased in arm's length transactions with outside vendors, the City will reimburse Non-Profit Entity at the actual rental or leased invoice rates when such rates are reasonably in line with the applicable rates specified in the Labor Surcharge & Equipment Rental Rate Book (including its supplement Miscellaneous Equipment Rental Rates) as determined by the City. Arm's length rental or lease transactions are those in which the firm involved in the rental or lease of such equipment is not associated with, owned by, have common management, directorship, facilities, or stockholders with the firm renting the equipment. Non-Profit Entity has the burden of proof to demonstrate that a rental or lease transaction was an arm's length transaction. Non-Profit Entity shall submit copies of all rental or lease invoices, and other information as requested by the City, if any, as supporting documentation with each Proposed Change Order cost proposal.

(2) For equipment that is not listed in the Labor Surcharge & Equipment Rental Rate Book, Non-Profit Entity shall provide to the City three separate quotes for rental of the applicable equipment for City's consideration.

(3) The City will pay for equipment based on daily, weekly, or monthly rates, whichever are lowest. The City will not pay for equipment based on hourly rates including operator. Unless otherwise specified, Non-Profit Entity shall use manufacturer's ratings and manufacturer-approved modifications to classify equipment for determination of applicable rental rates. If, however, equipment of unwarranted size or type and cost is used, Non-Profit Entity shall calculate the cost at the rental rate for equipment of proper size and type.

(4) The City will pay for equipment only for the time the equipment is in productive operation on the Extra Work. The City will not pay for equipment while inoperative due to breakdown or for non-work days. In addition, the City will not pay for any equipment rental time required to move the equipment to and from the Project Site. The City will pay for equipment loading and transportation costs, in lieu of rental time, only if

the equipment does not move under its own power and is utilized solely for the Extra Work. The City will not pay for mobilization or demobilization of equipment already on the Project Site. The City will reimburse Non-Profit Entity for equipment that is idle, non-operating, or in standby mode at the lesser of Caltrans' rates, as adjusted by Caltrans Delay Factor (defined in the Labor Surcharge & Equipment Rental Rate Book), as adjusted by its standby calculation, unless such equipment is rented or leased as provided above.

(5) Individual pieces of equipment having a replacement value of $1,000 or less are considered small tools or small equipment; City will not pay for such tools and equipment since the costs of these tools and equipment are included as part of markups for overhead and profit as defined in Section 2.2.3 (Markup for Overhead and Profit).

(6) Payment to Non-Profit Entity for the use of equipment as set forth in this Exhibit 13 (Costs Schedule) shall constitute full compensation to Non-Profit Entity for the cost of fuel, power, oil, lubricants, supplies, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators), and any and all costs to Non-Profit Entity incidental to the use of the equipment.

2.2.2 Costs Included as Part of Markup for Overhead and Profit. To the total of the direct costs of labor, materials, and equipment computed as provided in Section 2.2.1 (Direct Costs), the City will pay Non-Profit Entity markups for overhead and profit, as specified in Section 2.2.3 (Markup for Overhead and Profit). These markups shall constitute full compensation for all direct and indirect overhead costs and profit, which shall be deemed to include all items of expense not specifically listed in Section 2.2.1 (Direct Costs) as direct costs. The City shall not be obligated to pay for any separate allowance or itemization for any overhead costs. The following is a list, not intended to be comprehensive, of the types of costs that are included in the markups for overhead and profit for all Extra Work:

(A) Home office and field personnel including, principals, project managers, superintendents and supervisory foremen (unless they are at the Project Site planning, coordinating, or overseeing Extra Work), estimators, project engineers, detailers, draftspersons, schedulers, consultants, watchpersons, payroll clerks, administrative assistants, and secretaries.

(B) All field and home office expenses, including: field trailers; parking; storage sheds; office equipment and supplies; telephone service at the Project Site; long-distance telephone calls; fax machines; computers and software; internet and e-mail services; temporary utilities; sanitary facilities and services; janitorial services; small tools and equipment with a cost under $1,000 each; portable scaffolding; blocking; shores; appliances; job vehicles (except for job vehicles assigned solely to construction foremen and personnel that report to construction foremen); security and fencing; conformance to all regulatory requirements including compliance with safety regulations, safety programs, and safety meetings; cartage; warranties; record documents; and all related maintenance costs.

(C) Administrative functions, including reviewing, coordinating, distributing, processing, posting, recording, estimating, negotiating, scheduling, schedule updating and revising, expediting, surveying, engineering, drawing, detailing, revising shop drawings, preparing record drawings, carting, cleaning, protecting the Work, and other incidental Work related to the Change Order.

(D) All other costs and taxes required to be paid, but not included under direct costs as defined in Section 2.2.1 (Direct Costs).

2.2.3 Markup for Overhead and Profit. To the actual total direct costs of labor, material, and equipment used to perform Extra Work, the City will apply the following markups for overhead and profit:

(A) Initial Markup. An initial maximum markup for the NPE-Related Entity that actually performs any portion of the Extra Work based on the direct cost categories, as follows:

Direct Cost Categories	Maximum Markup
Non-Profit Entity – labor, materials and equipment	0%
Principal Project Company – labor *	10%
Principal Project Company – materials*	10%
Principal Project Company – equipment*	10%
Prime Contractor/Subcontractor (of any tier) – labor	15%
Prime Contractor/Subcontractor (of any tier) – materials	15%
Prime Contractor/Subcontractor (of any tier) – equipment	15%

* Extra Work self-performed by Principal Project Company.

(B) Additional Markup. An additional markup for the administration of Extra Work performed by Prime Contractors or Subcontractors, as follows:

(1) For Principal Project Company, a maximum markup of 3.0%.

(2) Subject to clause (5) below, for Prime Contractor, a maximum markup of 5.81% of the cost of that portion of the Extra Work performed by lower tier Contractors (which amount includes any gross receipts tax and other applicable business taxes applicable to the Extra Work).

(3) Subject to clause (5) below, for Subcontractors, a maximum of 5.0% of the cost of that portion of the Extra Work performed by lower tier Contractors.

(4) the premium for the D&C Contractor Guaranty, which shall be a maximum markup of 0.35%. Non-Profit Entity shall provide reasonable documentation supporting the actual payment of such amount to D&C Contractor's parent for the D&C Contractor Guaranty.

(5) The total cumulative additional markup under this subsection (B) shall not exceed 16.5%, regardless of the number of Contractor tiers involved with the Extra Work.

2.2.4 Adjustments and Considerations for Extra Work Costs.

(A) When both additions and credits are involved in any one Change Order, Non-Profit Entity's markup for direct costs shall be computed on the basis of its direct costs and labor productivity for the net change in the quantity of the Extra Work. For example, if a Change Order adds 14 units on one drawing and deletes 5 units on another drawing, the markup shall be based on the net addition of 9 units. No markup will be allowed if the deductive cost exceeds the additive cost.

(B) If the City issues written notice of deletion of a portion of Extra Work after the commencement of such Extra Work or after Non-Profit Entity has ordered acceptable materials for such Work which cannot be cancelled, or if part or all of such Extra Work is not performed by Non-Profit Entity because it is unnecessary due to actual Project Site conditions, City will pay Non-Profit Entity for direct costs of such Work actually performed plus markup for overhead and profit as provided in Section 2.2.3 (Markup for Overhead and Profit).

(C) The City shall not be obligated to compensate Non-Profit Entity for costs incurred after Non-Profit Entity receives the City's written notice deleting the portion of Extra Work.

(D) Materials ordered by Non-Profit Entity prior to the City's issuance of a notice of deletion and paid for by the City shall become the property of the City, and the City will pay for the actual cost of any further handling of such material. If the material is returnable to the vendor, and if the City so directs, Non-Profit Entity shall return the material and the City will pay Non-Profit Entity only for the actual charges made by the vendor for returning the material including restocking charges.

(E) Non-Profit Entity shall be solely responsible for determining which of its Contractors and Suppliers are assigned Change Orders. The City will not provide additional compensation to Non-Profit Entity for the cost of its Contractors and Suppliers to review, post, coordinate, or perform related tasks to administer Change Orders.

2.2.5 Records. Non-Profit Entity shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Change Orders and the cost of original Work. This requirement pertains to all types of Change Orders, as well as the additions, deletions, revisions, and Claims initiated by Non-Profit Entity.

2.3 Unit Prices

If mutually agreed by the Parties or specified in the Contract Documents, the cost of Extra Work will be determined on a unit-cost basis.

2.3.1 Initial Estimate. The City will calculate an initial cost estimate by multiplying the pre-agreed unit prices by the estimated quantities indicated in the corresponding Change Order.

2.3.2 Final Cost Calculation. The actual cost payable to Non-Profit Entity for the Extra Work will be based on the real quantities of work completed, not the initial estimates.

2.3.3 Overhead and Profit. Unit prices must include any overhead and profit, the calculation of which shall follow the guidelines provided in this Exhibit 13 (Costs Schedule).

2.4 Force Account

If the City determines in its good faith discretion, Extra Work Costs will be determined on a Force Account basis. In such a case, the City will direct Non-Profit Entity to proceed with the Extra Work on a Force Account basis, subject to a "not to exceed" budget established by the City.

2.4.1 General. When the City pays Extra Work on a Force Account basis, all direct costs itemized in accordance with Section 2.2.1 (Direct Costs) shall be subject to the approval of the City and compensation will be determined as set forth in this Exhibit 13 (Costs Schedule).

(A) All requirements for direct costs and markup for overhead and profit provided in Section 2.2.3 (Markup for Overhead and Profit) shall apply to Force Account Work. However, the City will pay only the actual necessary costs verified in the field by the City on a daily basis.

(B) Non-Profit Entity shall be responsible for all costs related to the documentation, data preparation, and administration of Force Account Work. Compensation for these costs shall be fully covered by the markup for overhead and profit markup as provided in Section 2.3 (Unit Prices).

(C) Notification and Verification. Before commencing any Force Account Work, Non-Profit Entity shall provide written notice to the City at least 24 hours before the scheduled Work. The Force Account Work must be witnessed, documented, and approved in writing by the City on the day the Work is performed. Failure by the Non-Profit Entity to provide timely notice to the City before initiating Force Account Work shall result in the City not being obligated to compensate for such Work.

In addition, Non-Profit Entity shall notify the City when the cumulative costs incurred by Non-Profit Entity for the Force Account Work equal 80% of the budget pre-established by the City. The City shall not be obligated to compensate Non-Profit Entity for Force Account Work exceeding the “not to exceed” budget amount if Non-Profit Entity fails to provide the required notice before exceeding 80% of the Force Account budget.

(D) Reports. Non-Profit Entity shall diligently proceed with City-directed Force Account Work and shall submit to the City no later than 12:00 p.m. of the day following performance of Force Account Work a daily Force Account Work report on a form obtained from the City. The report shall provide an itemized, detailed account of the daily Force Account labor, material, and equipment, including names of the individuals and the specific pieces of equipment identified by manufacturer's model type and serial number. Non-Profit Entity's authorized representative shall complete and sign the report. The City shall not be obligated to compensate Non-Profit Entity for Force Account Work for which Non-Profit Entity does not timely complete and submit the aforementioned report to the City.

(E) Agreement. If Non-Profit Entity and the City reach a negotiated, signed agreement on the cost of a Change Order while the Extra Work is proceeding on a Force Account basis, Non-Profit Entity's signed written reports shall be discontinued and all previously signed reports shall become invalid.

2.5 Bonds and Insurance

The following costs with respect to D&C Work performed under a Change Order will be paid on a reimbursement basis on the basis of the amount actually paid, without markup: (a) additional premiums for the Payment Bond and the Performance Bond; and (b) additional insurance premiums for the (i) contractor-controlled insurance program, (ii) difference in conditions insurance, (iii) contractor's professional protective indemnity insurance, (iv) builder's risk insurance, and (v) subcontractor default insurance. Non-Profit Entity shall provide reasonable documentation supporting the payment to an insurer and/or surety of the amounts for which reimbursement is sought.

3.0 Intentionally Omitted

4.0 Financing Delay Costs

Financing Delay Costs, when allowed under this Agreement, will be paid in the form and timing as described in Section 7.0 (Form and Timing of Compensation).

5.0 Directed Acceleration

If the City orders Non-Profit Entity to accelerate the D&C Work in accordance with Section 1.3.2(c) of Exhibit 9 (Change Procedures), and in the absence of agreed upon compensation, the City will compensate Non-Profit Entity for performance of the accelerated work in accordance with Section 2.4 (Force Account).

6.0 Unrecoverable Costs

Non-Profit Entity is not entitled to compensation for the following costs:

(A) Loss of anticipated profit.

(B) Consequential damages, including loss of bonding capacity, loss of bidding opportunities, insolvency, and the effects of force account work on other projects, or business interruption.

(C) Indirect costs.

(D) Attorneys' fees, claim preparation expenses, and the costs of litigation.

(E) Unabsorbed or extended field or home office overhead or any damages using an Eichleay or similar equation, except as otherwise provided in the mark ups specified in Section 2.2.2 (Costs Included as Part of Markup for Overhead and Profit).

(F) The cost of project management services provided by Non-Profit Entity or Principal Project Company.

The following do not constitute cause for a Claim for Extra Work Costs or Delay Costs:

(1) The inability to secure satisfactory materials, for reasons beyond Non-Profit Entity's control, from the source upon which the proposal was based, unless project specific single source Suppliers are specified by City; or

(2) Changes in carrier rates or the alteration of transportation facilities for these materials during the Term.

7.0 Form and Timing of Compensation

7.1 Payments or Deductions of Extra Work Costs, Delay Costs and Financing Delay Costs

If a Delay Event:

(A) results in an amount owing from Non-Profit Entity to City in accordance with this Agreement, City will deduct such amount from the Milestone Payment (only to the extent that such Delay Event affects the D&C Work prior to the Substantial Completion Date) or Availability Payments payable to Non-Profit Entity after the Delay Event, or if no subsequent Milestone Payment or Availability Payments are payable to Non-Profit Entity, such amount will be a debt due and payable by Non-Profit Entity to City;

(B) results in an amount owing from City to Non-Profit Entity that is not financed by Non-Profit Entity in accordance with Section 7.2 (Additional Funding), City will compensate Non-Profit Entity as follows:

(1) subject to Sections 7.1(B)(2) and 7.1(B)(3) in the form of:

a. an adjustment to the Milestone Payment or Availability Payments over the Term;

b. a lump sum, unit price or force account payment as described in this Schedule;

c. progress or other periodic payments invoiced as Extra Work is completed or as other multiple payments over the Term; or

d. any combination of the above,

in accordance with the payment arrangements set out in the Change Order or Unilateral Change Order or otherwise as determined by the City in its sole discretion;

(2) in respect of Extra Work Costs or Delay Costs, within 1 calendar month after the date of the receipt from Non-Profit Entity of the Change Order except to the extent that any Extra Work Costs or Delay Costs are disputed by City and referred for dispute resolution in accordance with Article 18 (Contract Dispute Procedures); and

(3) in respect of Financing Delay Costs, on the date which City would have paid the Milestone Payment or Availability Payment relating to those days of delay had Substantial Completion not been delayed by the relevant Compensable Delay Event; or

(C) results in an amount owing from City to Non-Profit Entity that is financed by Non-Profit Entity in accordance with Section 7.2 (Additional Funding), City will pay such amount to Non-Profit Entity in the same manner as Section 7.1(B).

7.2 Additional Funding

Where City requests Non-Profit Entity obtain funding for a Delay Event or as required under Section 11.12.1 of the Agreement, Non-Profit Entity shall use all reasonable endeavors to obtain such funding, including by:

(A) using any savings resulting from other Delay Events or reductions in other Allowance values (as applicable) which have resulted in amounts being available under the Financing Documents;

(B) utilizing any standby facility that may be available to Non-Profit Entity;

(C) arranging for additional funding under the Financing Documents and from other sources (if permitted under the Financing Documents); and

(D) arranging other funding obtained on commercial terms for Non-Profit Entity by City (without any obligation on City to make any such arrangements).

To the extent Non-Profit Entity is able to obtain funding, the cost of the funding will be taken into consideration by the parties in the compensating Non-Profit Entity for (i) the Delay Event in accordance with Section 7.1 (Payments or Deductions of Extra Work Costs, Delay Costs and Financing Delay Costs); or (ii) increase in the cumulative total of the original Allowance values as set out in Section 11.12.1(g) of the Agreement. City shall pay Non-Profit Entity an amount equal to the reasonable out-of-pocket expenses incurred by Non-Profit Entity in seeking such financing, provided that City approved such expenses prior to Non-Profit Entity incurring them.

Where, having used all reasonable endeavors, Non-Profit Entity is unable to obtain funding or funding is on terms which are not satisfactory to City, City will, without limiting its rights under Exhibit 9 (Change Procedures), compensate Non-Profit Entity in accordance with Section 7.1(A)-(C).

EXHIBIT 14

KEY CONTRACT PROVISIONS

I. Key Contracts

Each Key Contract shall:

(a) Include a covenant to maintain all licenses required by applicable Law;

(b) Require the Key Contractor to carry out its scope of work in accordance with applicable requirements of the Contract Documents, the Regulatory Approvals, applicable Law, and plans, systems and manuals developed and used by Non-Profit Entity under the Contract Documents;

(c) Set forth representations, warranties, guaranties and liability provisions of the Key Contractor appropriate for work of a similar scope and scale;

(d) Expressly state that all warranties and guaranties remaining in effect upon the expiration of the Term or earlier termination of this Agreement, whether express or implied, shall inure to the benefit of City, its successors and assigns, and any Third Parties for whom Work is being performed;

(e) Set forth a standard of professional responsibility or a standard for commercial practice (as applicable) equal to or better than the requirements of the Contract Documents and in accordance with Good Industry Practice for work of similar scope and scale;

(f) To the extent applicable, if not obtained by Non-Profit Entity, require the Key Contractor to provide Payment Bond(s) and Performance Bond(s) as required under Section 10.2 (Performance Security) of this Agreement before commencement of any work by or on behalf of the Key Contractor, and expressly require such Key Contractor to provide any surety Notices of loss or potential loss to Non-Profit Entity and City;

(g) Preclude suspension of performance or demobilization by the Key Contractor unless and until it delivers to City Notice of the other contracting party's breach or default under such Key Contract and allows City the reasonable opportunity to cure such breach or default;

(h) Not be assignable by the Key Contractor without Non-Profit Entity's and City's prior consent, provided that this provision shall not prohibit subcontracting of portions of the Work to qualified Subcontractors;

(i) Include the requirements and provisions in this Agreement applicable to Contractors regarding title to and other Intellectual Property rights and licenses;

(j) Require the Key Contractor to participate in meetings between Non-Profit Entity and City concerning matters pertaining to such Key Contractor, its work or the coordination of its work with Other Contractors in accordance with direction to such Key Contractor provided by Non-Profit Entity or other party to the Key Contract, provided that City

retains authority to give such direction or take such action as in its opinion is necessary to remove an immediate and present threat to the safety of life or property;

(k) Require the Key Contractor to participate in, be joined in, be subject to and bound by and give evidence in any dispute resolution proceeding under Article 18 (Contract Dispute Procedures) of this Agreement, if such participation is requested by either City or Non-Profit Entity;

(l) Without cost to Non-Profit Entity or City, and subject to the rights of the Collateral Agent under any Direct Agreement, permit assignment to City or its successors, assigns or designees of all Non-Profit Entity's or other contracting party's rights under the Key Contract (with such assignment to include the benefit of all Key Contractor warranties, indemnities, guarantees and professional responsibility), contingent only upon delivery of Notice from City following the Termination Date, allowing City or its successor, assign or designee to obtain the benefit of Non-Profit Entity's or other contracting party's rights with liability only for those remaining obligations of Non-Profit Entity or the other contracting party accruing after the date of delivery of said Notice from City, without extinguishing existing claims of the Key Contractor against Non-Profit Entity or the corresponding Claims of Non-Profit Entity against City;

(m) Expressly state that any acceptance of assignment of the Key Contract by City, the Collateral Agent or either or their respective successors, assigns or designees shall not operate to make the assignee responsible or liable for any breach of the Key Contract by Non-Profit Entity or for any amounts due and owing under the Key Contract for work or services rendered before acceptance of the assignment;

(n) Expressly include the Indemnitees as indemnitees, with direct right of enforcement, in any indemnity given by the Key Contractor under the Key Contract;

(o) Expressly include an acknowledgement that, except to the extent of stop notice rights under State law, the Key Contractor has no right or claim to any lien or encumbrance upon the Project and Project Site for failure of the other contracting party to pay amounts due the Key Contractor, and a waiver of any such right or claim that may exist at Law or in equity;

(p) Expressly include the right of Non-Profit Entity to terminate the Key Contract in whole or in part upon any termination of this Agreement without liability of Non-Profit Entity or City for the Key Contractor's lost profits or business opportunity;

(q) Not contain any terms that do not comply or are inconsistent with the terms of the Contract Documents;

(r) Include:

(i) a covenant acknowledging that, subject to the rights of the Collateral Agent under any Direct Agreement, upon receipt of written Notice from City, City is entitled to exercise step-in rights with respect to the Key Contract (where City is also exercising its step-in rights under Section 16.2.5 (City Step-in Rights) of this Agreement), without any necessity for a consent or approval from Non-Profit Entity or the making of a determination whether City validly exercised its step-in rights; and

(ii) a waiver and release by Non-Profit Entity of any claim or cause of action against the Key Contractor arising out of, relating to or resulting from its recognition of City's step-in rights in reliance on any such written Notice from City;

(s) Include a covenant that will survive termination of the Key Contract obligating the Key Contractor to promptly execute and deliver to City or its successor, assign or designee a new contract between the Key Contractor and City or its successor, assign or designee on the same terms as the Key Contract, if (i) the Key Contract is rejected by Non-Profit Entity in bankruptcy or is wrongfully terminated by Non-Profit Entity and (ii) City delivers a request for such new contract within 60 days following termination or expiration of this Agreement;

(t) Include a covenant that will survive termination of the Key Contract to the effect that if the Key Contractor was a party to an escrow agreement for an IP Escrow and Non-Profit Entity terminates such escrow agreement, then the Key Contractor also shall execute and deliver to City, concurrently with such new contract, a new escrow agreement on the same terms as the terminated escrow agreement, and shall concurrently make the same deposits to the new IP Escrow as made or provided under the terminated escrow agreement. The obligation to include the same terms in each such new contract (including new IP Escrows) is subject to the following exceptions: (i) terms of a Key Contract or IP Escrow agreement rendered moot or inapplicable solely due to change in the identity of the contracting party; and (ii) terms of a Key Contract that must be adjusted due to schedule delay caused solely by Non-Profit Entity's rejection in bankruptcy or wrongful termination;

(u) Require the Key Contractor to (i) maintain usual and customary Books and Records for the type and scope of operations of business in which it is engaged and retain such Books and Records for the period stated in Section 21.1.1(e) of this Agreement or other applicable period specified in the Contract Documents, (ii) permit audit of Books and Records by City and (iii) provide progress reports to Non-Profit Entity appropriate for the type of work it is performing sufficient to enable Non-Profit Entity to furnish reports required under this Agreement;

(v) Include a right of inspection for City, or City's designee(s), consistent with City's inspection rights under the Contract Documents; and

(w) Intentionally Omitted.

(x) Provide that any purported amendment contrary to the requirements of this Exhibit 14 (Key Contract Provisions), without the prior written consent of City, shall be null and void.

II. D&C Contract

Each D&C Contract shall:

(a) Ensure D&C Contractor participation in and compliance with commissioning tasks, including the requirements under Division 6 (Testing & Commissioning and Operational Readiness) of the Technical Requirements, to provide a properly functioning building that includes fundamental commissioning requirements; and

(b) At a minimum, outlining the following commissioning requirements, in accordance with Division 6 (Testing & Commissioning and Operational Readiness) of the Technical Requirements:

(i) Commissioning team roles and responsibilities;

(ii) Requirements for a communication protocol between and among Non-Profit Entity, Principal Project Company, D&C Contractor, and the Commissioning Provider;

(iii) Submittal requirements and review procedures;

(iv) Operation and maintenance documentation requirements;

(v) Meetings;

(vi) Construction verification procedures;

(vii) Cost of retesting;

(viii) Start-up, testing, adjusting and balancing documentation and verification;

(ix) Functional performance testing requirements;

(x) Systems Manual requirements;

(xi) Training of City personnel;

(xii) Schedule and contractual milestones;

(xiii) End of warranty site visit; and

(xiv) Commissioning specifications are to be provided to the D&C Contractor.

EXHIBIT 15

CONDITIONS PRECEDENT

Exhibit 15A: Conditions to NTP 1 - Commencement of Non-Construction Work

Exhibit 15B: Conditions to NTP 2 - Commencement of Construction Work

Exhibit 15C: Conditions to Substantial Completion

Exhibit 15D: Conditions to Final Acceptance

EXHIBIT 15A

CONDITIONS TO NTP1 - COMMENCEMENT OF NON-CONSTRUCTION WORK

The conditions to NTP 1 are:

(a) Financial Close has occurred;

(b) City has accepted the the Design Management Plan; (ii) the Project Design Quality Plan; and (iii) the Offsite Utility Reasonable Investigation Plan;

(c) all Insurance Policies required to be in effect at NTP 1 pursuant to Exhibit 7 (Insurance Requirements) have been obtained and are in full force and effect and Non-Profit Entity has delivered to City verification thereof as required under Section 10.1.2.4(a) of this Agreement;

(d) Non-Profit Entity has certified to City that all personnel who will perform D&C Work either hold all licenses, certifications, registrations, permits or approvals necessary for performance of the D&C Work or will obtain them before starting work as and to the extent required by the Contract Documents and applicable Law;

(e) Non-Profit Entity is not then in receipt of any Notice of NPE Default from City unless any such default has been cured or waived in writing by City;

(f) Non-Profit Entity is not then in receipt of any Notice of default delivered pursuant to the Financing Documents unless any such default has been cured, and no Lender has otherwise indicated that it is unwilling or unable to presently fund Non-Profit Entity's costs of the Work; and

(g) All representations and warranties of Non-Profit Entity in Section 19.1 (Non-Profit Entity Representations and Warranties) of this Agreement shall be and remain true and correct in all material respects, and Non-Profit Entity has delivered to City a certificate certifying to the same.

EXHIBIT 15B

CONDITIONS TO NTP 2 - COMMENCEMENT OF CONSTRUCTION WORK

The conditions to NTP 2 are:

(a) City has issued NTP 1;

(b) City has accepted the Project Schedule;

(c) City has accepted the Project Management Plan, including the Construction Management Plan; and the Project Quality Program Plan, including the Project Construction Quality Plan;

(d) City's has accepted the Health and Safety Plan required pursuant to Section 01 35 45 of Division 10 of the Technical Requirements;

(e) all Insurance Policies required to be in effect at NTP 1 pursuant to Exhibit 7 (Insurance Requirements) remain in full force and effect, and Non-Profit Entity has delivered to City verification thereof as required under Section 10.1.2.4(a) of this Agreement;

(f) all Regulatory Approvals necessary to begin the applicable portions of the Construction Work have been obtained and Non-Profit Entity has furnished to City fully executed copies of such Regulatory Approvals other than the CEQA Approval;

(g) the Access Date has occurred and all rights of access necessary for commencement of Construction Work on the applicable portion of the Project Site have been obtained;

(h) all applicable pre-construction requirements, as set forth in the final MMRP contained in Section 01 35 50 of Division 10 of the Technical Requirements and contained in Section 01 35 43, Section 01 35 50, Section 02 80 13, and Section 02 81 10 of Division 10 of the Technical Requirements, have been reviewed and confirmed to be completed by City in its regulatory capacity;

(i) all applicable pre-construction requirements contained in any Regulatory Approvals, in each case for the applicable portion of the Construction Work, have been satisfied;

(j) All Utility Adjustments have been completed and Non-Profit Entity certifies that, other than Utility Adjustments arising out of any Unidentified Utilities found after the Setting Date, no further Utility conflicts exist with respect to the Project;

(k) Non-Profit Entity has obtained approvals from Authorities Having Jurisdiction required for, as well as City approval of, any proposed lane closures, and has taken other appropriate measures to ensure maintenance of traffic in the area affected by the Work;

(l) Non-Profit Entity has delivered to City, and City has accepted or approved (as applicable), all Submittals relating to the applicable portion of the Construction Work required by the Project Management Plan and the Contract Documents to be accepted or approved, in the form and content required by the Project Management Plan or Contract Documents;

(m) Non-Profit Entity has delivered to City, and City has approved, the Final Commissioning Plan;

(n) Non-Profit Entity has obtained City approval of the Release for Construction Documents for the affected Construction Work in accordance with Section 1.8.6 of Division 1 of the Technical Requirements;

(o) the guarantees in favor of City, if any, required under Section 10.5 (Guarantees) of this Agreement have been executed, obtained and delivered to, and received by, City and are in full force and effect;

(p) Non-Profit Entity is not then in receipt of any Notice of NPE Default from City unless any such default has been cured or waived in writing by City;

(q) Non-Profit Entity is not then in receipt of any Notice of default delivered pursuant to the Financing Documents unless any such default has been cured, and no Lender has otherwise indicated that it is unwilling or unable to presently fund Non-Profit Entity's costs of the Work;

(r) All representations and warranties of Non-Profit Entity in Section 19.1 (Non-Profit Entity Representations and Warranties) of this Agreement shall be and remain true and correct in all material respects, and Non-Profit Entity has delivered to City a certificate certifying to the same; and

(s) With respect to the Offsite Utility Work only, Non-Profit Entity has completed all Offsite Utility Reasonable Investigation pursuant to the Offsite Utility Reasonable Investigation Plan and the Offsite Utility Information has been submitted to City; provided, however, that if, as part of the Offsite Utility Reasonable Investigation, Non-Profit Entity identifies a previously Unidentified Utility and requires additional time beyond 135 days in order to develop a plan to mitigate and minimize the impact of such Unidentified Utility, (i) this clause (s) shall be deemed satisfied for purposes of issuing NTP 2 for all Work other than the Offsite Utility Work actually or potentially impacted by or related to the Unidentified Utility; (ii) upon issuance of such NTP 2, Non-Profit Entity may commence all Work other than such Offsite Utility Work; and (iii) upon Notice from Non-Profit Entity to City that it has completed the Offsite Utility Reasonable Investigation and submittal of all Offsite Utility Information (including with respect to such Unidentified Utility), Non-Profit Entity may commence such Offsite Utility Work.

EXHIBIT 15C

CONDITIONS TO SUBSTANTIAL COMPLETION

The conditions to Substantial Completion are:

(a) Non-Profit Entity has completed all D&C Work in accordance with the requirements of this Agreement and the Infrastructure Facility can be utilized safely for its intended purpose, including (i) full access to all points of entry and exit and (ii) completion of all Construction Work other than Punch List items approved by City;

(b) each Authority Having Jurisdiction has issued a temporary certificate of occupancy for the Infrastructure Facility, to the extent such certificate is required by applicable Law, or has otherwise accepted the Infrastructure Facility, as applicable;

(c) Intentionally Omitted;

(d) Intentionally Omitted;

(e) the Infrastructure Facility is in a condition of full operational functionality and operational readiness to allow the SFMTA's transit operations to relocate to the Infrastructure Facility as required in Division 10 and Division 6 of the Technical Requirements, respectively including with all emergency testing and commissioning activities successfully completed, and with the Help Desk established and operating, subject to the completion of Punch List items;

(f) Intentionally Omitted;

(g) Intentionally Omitted;

(h) Non-Profit Entity has prepared and submitted a Punch List in accordance with the Contract Documents and City has accepted such list;

(i) Non-Profit Entity is not then in receipt of any Default Notice from City unless any such default has been cured or waived in writing by City;

(j) Non-Profit Entity is not then in receipt of any Notice of default delivered pursuant to the Financing Documents unless any such default has been cured; and

(k) Intentionally Omitted;

(l) all Submittals required by the Project Management Plan or Contract Documents to be submitted, accepted and/or approved by City before Substantial Completion have been submitted to and accepted or approved by City, as applicable.

EXHIBIT 15D

CONDITIONS TO FINAL ACCEPTANCE

The conditions to Final Acceptance are:

(a) Non-Profit Entity has completed all D&C Work in accordance with this Agreement;

(b) City has issued a Certificate of Substantial Completion for the Infrastructure Facility;

(c) all Punch List items have been completed to the reasonable satisfaction of City;

(d) Non-Profit Entity has delivered to City a reasonable inventory of all spare parts, spare components, spare equipment, special tools, materials, expendables and consumables necessary for the operation and maintenance of the Infrastructure Facility;

(e) all Submittals that Non-Profit Entity is required by the Contract Documents to submit upon Final Acceptance have been submitted to City;

(f) each Authority Having Jurisdiction has issued a certificate of occupancy, to the extent such certificate is required by applicable Law, and/or has provided other approvals required for operation of the Infrastructure Facility, as applicable;

(g) City has received a complete set of the As-Built Documents and documentation for the Infrastructure Facility;

(h) Non-Profit Entity has, in accordance with Section 21.4 (Intellectual Property), granted to City all Base License Rights to NPE IP and Third Party IP, delivered to City all Developed IP, delivered to City all IP Materials, and made all deposits to the IP Escrow required at or prior to Final Acceptance;

(i) If close of escrow for the HCC has not occurred by the date intended to be the Final Acceptance Date, NPE has left the parcel area anticipated for the HCC in a “no better, no worse” condition for drainage and vehicular access from Mariposa Street than that which existed as of the Effective Date.;

(j) Non-Profit Entity has satisfactorily demonstrated integrated operational functionality through “live” coordinated responses (in conjunction with City staff including emergency response personnel) to failure management and other emergency events during the operations of the Infrastructure Facility in accordance with Division 6 of the Technical Requirements;

(k) Non-Profit Entity has delivered to City (i) all manufacturers’ warranties required under, and in the form and content specified by the Technical Requirements (including Division 3 of the Technical Requirements and Division 10 of the Technical Requirements) and (ii) all documents and other evidence of warranties under Sections 7.9 (Final Acceptance) and 6.11 (Warranties) of this Agreement;

(l) Non-Profit Entity has delivered to City, and City has approved, the Systems Manual;

(m) Non-Profit Entity has completed the Move-In, in accordance with Section 7.13 (Move-In) of this Agreement;

(n) Non-Profit Entity has:

(i) Intentionally Omitted;

(ii) completed training of City's operations and maintenance personnel in accordance with Section 1.7 of Division 1 of the Technical Requirements;

(iii) delivered to City a certificate, in form acceptable to City, executed by Non-Profit Entity that it and its Contractors are fully staffed with such trained personnel and are ready, willing and able to operate and maintain the Infrastructure Facility in accordance with the terms of the Contract Documents including the approved Project Management Plan;

(iv) delivered to City training records evidencing compliance with training requirements for City's operations and maintenance personnel, including copies of course completion certificates issued to each of the subject personnel, and including SFMTA O&M Services training manuals and video recordings of training sessions; and

(o) completed and documented completion of all training required to allow full access to the Project Site to those individuals designated by City in accordance Section 1.7 of Division 1 of the Technical Requirements; the relevant systems and equipment have passed all required tests and Non-Profit Entity has delivered to City all reports, data, and documentation relating to such tests;

(p) Non-Profit Entity is not then in receipt of any Notice of NPE Default from City unless any such default has been cured or waived in writing by City; and

(q) Non-Profit Entity is not then in receipt of any Notice of default delivered pursuant to the Financing Documents unless any such default has been cured.

EXHIBIT 16

FEDERAL, STATE AND CITY REQUIREMENTS

Exhibit 16A: Federal Requirements

Exhibit 16B: State Requirements

Exhibit 16C: City Requirements

Exhibit 16D: SFMTA's Surveillance Technology Policy

EXHIBIT 16A

FEDERAL REQUIREMENTS

1. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

Non-Profit Entity and City acknowledge and agree that, notwithstanding any concurrence by the federal government in, or approval of, the solicitation or award of this Agreement, absent the express written consent by the federal government, the federal government is not a party to this Agreement and shall not be subject to any obligations or liabilities to City, Non-Profit Entity or any other party pertaining to any matter resulting from this Agreement. Non-Profit Entity agrees to include the above clause in each Contract financed in whole or in part with federal assistance provided by the FTA. It is further agreed that the clause shall not be modified, except to identify the Contractor who will be subject to its provisions.

2. FALSE STATEMENTS OR CLAIMS – CIVIL OR CRIMINAL FRAUD

49 U.S.C. § 5323(l)(1)
31 U.S.C. §§ 3801-3812
18 U.S.C. § 1001
49 C.F.R. part 31

Non-Profit Entity acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. part 31, apply to its actions pertaining to the Project. Upon execution of this Agreement, Non-Profit Entity certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to this Agreement or the Project. In addition to other penalties that may be applicable, Non-Profit Entity further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the federal government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on Non-Profit Entity to the extent the federal government deems appropriate. Non-Profit Entity also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the federal government under a contract connected with a project that is financed in whole or in part with federal assistance originally awarded by FTA under authority of 49 U.S.C. chapter 53, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5323(l) on Non-Profit Entity, to the extent the federal government deems appropriate. Non-Profit Entity agrees to include the above two clauses in each Contract financed in whole or in part with federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Contractor who will be subject to the provisions.

3. ACCESS TO THIRD PARTY CONTRACT RECORDS

49 U.S.C. § 5325(g)
2 C.F.R. § 200.333
49 C.F.R. part 633

(a) **Record Retention**. Non-Profit Entity will retain, and will require its Contractors of all tiers to retain, complete and readily accessible records related in whole or in part to this Agreement, including, but not limited to, data, documents, reports, statistics, sub-agreements, leases, subcontracts, arrangements, other third-party agreements of any type, and supporting materials related to those records.

(b) **Retention Period**. Non-Profit Entity agrees to comply with the record retention requirements in accordance with 2 C.F.R. § 200.333. Non-Profit Entity shall maintain all books, records, accounts and reports required under this Agreement for a period of at not less than three (3) years after the date of termination or expiration of this Agreement, except in the event of litigation or settlement of claims arising from the performance of this Agreement, in which case records shall be maintained until the disposition of all such litigation, appeals, claims or exceptions related thereto.

(c) **Access to Records**. Non-Profit Entity agrees to provide sufficient access to FTA and its contractors to inspect and audit records and information related to performance of this Agreement, including such records and information as Non-Profit Entity may regard as confidential or proprietary, as reasonably may be required and to the U.S. Secretary of Transportation and the Comptroller General of the United states, the state, or their duly authorized representatives, access to all third party contract records (at any tier) as required under 49 U.S.C. § 5325(g).

(d) **Access to the Sites of Performance**. Non-Profit Entity agrees to permit FTA and its contractors access to the sites of performance under this Agreement as reasonably may be required.

4. CHANGES TO FEDERAL REQUIREMENTS

(a) Non-Profit Entity shall at all times comply with all applicable FTA regulations, policies, procedures and directives, as these regulations, policies, procedures, and directives may be amended from time to time, including those listed directly or by reference in any Master Agreement between City and FTA. Non-Profit Entity's failure to so comply shall constitute a material breach of this Agreement.

(b) Federal requirements that apply to City or the award, this Agreement, and any amendments thereto may change due to changes in federal law, regulation, other requirements, or guidance, or changes in the City's underlying agreement including any information incorporated by reference and made part of that underlying agreement.

(c) Applicable changes to those federal requirements will apply to this Agreement and Parties thereto at any tier.

5. TERMINATION

2 C.F.R. § 200.339
2 C.F.R. App. II(B) to part 200

See Article 17 (Termination) of this Agreement.

6. CIVIL RIGHTS

Non-Profit Entity is an Equal Opportunity Employer. As such, Non-Profit Entity agrees to comply with all applicable federal civil rights laws and implementing regulations. Apart from inconsistent requirements imposed by federal laws or regulations, Non-Profit Entity agrees to comply with the requirements of 49 U.S.C. § 5323(h)(3) by not using any federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications. Under this Agreement, Non-Profit Entity shall at all times comply with the following requirements and shall include these requirements in each Contract entered into as part thereof.

(a) **Nondiscrimination**. In accordance with federal transit law at 49 U.S.C. § 5332, Non-Profit Entity agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, disability, or age; and that the Non-Profit Entity and each Contractor maintains no employee facilities segregated on the basis of race, color, religion or national origin. In addition, Non-Profit Entity agrees to comply with applicable federal implementing regulations and other implementing requirements FTA may issue.

(b) **Nondiscrimination – Title VI of the Civil Rights Act**. Non-Profit Entity will:

(i) prohibit discrimination based on race, color, or national origin;

(ii) comply with: (A) Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000d, et seq. and (B) Federal transit law, specifically 49 U.S.C. § 5332; and

(iii) follow: (A) The most recent edition of FTA Circular 4702.1, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients," to the extent consistent with applicable federal laws, regulations, requirements, and guidance; (B) U.S. DOJ, "Guidelines for the enforcement of Title VI, Civil Rights Act of 1964," 28 C.F.R. § 50.3; and (C) All other applicable federal guidance that may be issued.

For more information on Title VI of the Civil Rights Act requirements, Non-Profit Entity shall review City's Title VI Program developed for the Project to comply with Title VI of the Civil Rights Act of 1964.

(c) **Age**. In accordance with the Age Discrimination in Employment Act, 29 U.S.C. §§ 621- 634, U.S. Equal Employment Opportunity Commission (U.S. EEOC) regulations, "Age Discrimination in Employment Act," 29 C.F.R. part 1625, the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6101 et seq., U.S. Health and Human Services regulations, "Nondiscrimination on the Basis of Age in Programs or Activities Receiving Federal Financial Assistance," 45 C.F.R. part 90, and Federal transit law at 49 U.S.C. § 5332, Non-Profit Entity agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, Non-Profit Entity agrees to comply with any implementing requirements FTA may issue.

(d) **Disabilities**. In accordance with section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. § 794, the Americans with Disabilities Act of 1990, as amended, 42 U.S.C. § 12101 et seq., the Architectural Barriers Act of 1968, as

amended, 42 U.S.C. § 4151 et seq., and Federal transit law at 49 U.S.C. § 5332, Non-Profit Entity agrees that it will not discriminate against individuals on the basis of disability. In addition, Non-Profit Entity agrees to comply with any implementing requirements FTA may issue.

(e) **Department of Transportation Funding Requirements**. To ensure compliance with requirements applicable to agreements funded in whole or in part by USDOT funds the following requirements shall apply to this Agreement:

(i) Non-Profit Entity and each Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of this Agreement.

(ii) Non-Profit Entity and each Contractor shall carry out applicable requirements of 49 C.F.R. Part 26, and shall take all necessary and reasonable steps under 49 C.F.R. Part 26 to ensure nondiscrimination in the award and administration of USDOT-assisted Contracts.

(iii) Failure by Non-Profit Entity and any of its Contractors to carry out the requirements of this Section 6(f) (Department of Transportation Funding Requirements) is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as the City deems appropriate, which may include but which are not limited to: withholding of monthly payments, assessment of sanctions, liquidated damages, and/or disqualifying Non-Profit Entity from future work as non-responsible.

(f) **Federal Law and Public Policy Requirements.** The Non-Profit Entity shall ensure that federal funding is expended in full accordance with the U.S. Constitution, federal law, and statutory and public policy requirements including, but not limited to, those protecting free speech, religious liberty, public welfare, the environment, and prohibiting discrimination; and the Non-Profit Entity will cooperate with federal officials in the enforcement of federal law, including cooperating with and not impeding U.S. Immigration and Customs Enforcement (ICE) and other federal offices and components of the Department of Homeland Security in the enforcement of federal immigration law.

(g) **Federal Anti-Discrimination.**

(i) Pursuant to section (3)(b)(iv)(A), Executive Order 14173, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*, Non-Profit Entity agrees that its compliance in all respects with all applicable federal anti-discrimination laws is material to the government's payment decisions for purposes of section 3729(b)(4) of title 31, United States Code.

(ii) Pursuant to section (3)(b)(iv)(B), Executive Order 14173, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity*, by entering into this Contract, Non-Profit Entity certifies that it does not operate any programs promoting diversity, equity, and inclusion (DEI) initiatives that violate any applicable federal anti-discrimination laws.

7. SMALL BUSINESS ENTERPRISE (SBE)/DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM REQUIREMENTS

49 C.F.R. part 26

(a) **SBE Goals**. City will establish a SBE/DBE Program and SBE goals for the Project, and will be required to report on SBE participation so that its attainment efforts may be evaluated. Such requirements are in addition to all other equal opportunity employment requirements of this Agreement. Non-Profit Entity shall comply with the SBE goals that City establishes for the Project and this Agreement.

(b) **Post-Award Compliance Monitoring**. City will conduct post-award monitoring of Non-Profit Entity's compliance with the SBE/DBE provisions of this Agreement. Non-Profit Entity shall cooperate with City requests for assistance with post-award monitoring. Non-Profit Entity shall maintain records sufficient to document, on an ongoing basis, name of each SBE Contractor/Subcontractor, work assignment of each SBE Contractor/Subcontractor, SBE commitments, amounts paid to each SBE Contractor/Subcontractor during the reporting period, amounts paid to each SBE Contractor/Subcontractor as a percentage of the total commitment to each SBE Contractor/Subcontractor, etc., among other information. Non-Profit Entity will be required to submit updated Open Ended Performance Plans, supplemental reports and other information as required in the SBE/DBE Plan.

(c) **SBE Certifications.**

In order to meet the 25% and 20% SBE Goals for Design and Professional Services and Construction, Small business firms must be certified in one of the following programs:

- California Department of General Services (SBEs) – State Program https://www.caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx
- San Francisco Contract Monitoring Division (LBEs) – City Program sfcitypartner.sfgov.org/pages/LBESearch/supplier-search.aspx

OR

- Have its Small Business Verification Form approved by SFMTA CCO

(d) **Listed SBEs**. Non-Profit Entity shall utilize the specific SBEs listed in this Agreement unless Non-Profit Entity obtains City's written consent to terminate or substitute a SBE Contractor. Unless City's consent is provided, Non-Profit Entity shall not be entitled to any payment for work or material unless it is performed or supplied by the listed SBE.

(e) **Access to Records**. City will require Non-Profit Entity and its Contractors to maintain records and documents of payments to SBEs for three years following the performance of the contract. These records will be made available for inspection upon request by any authorized representative of City or the USDOT.

This reporting requirement also extends to any certified SBE Contractor/Subcontractor. The authorized representative(s) of City, the USDOT, the Comptroller General of the United States, shall have the right to inspect and audit all data and records of Non-Profit Entity relating to its performance under this Article 7 (Small Business Enterprise (SBE)/Disadvantaged Business Enterprise (DBE) Program Requirements).

(f) **Special Requirements for a Transit Vehicle Manufacturer**. The transit vehicle manufacturer, as a condition of being authorized to bid or propose on FTA-assisted transit vehicle procurements, must certify that it has complied with the requirements of 49 C.F.R. part 26.

(g) **No Discrimination**. Non-Profit Entity and its Contractors shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. Non-Profit Entity shall carry out applicable requirements of 49 C.F.R. Part 26 in the award and administration of USDOT-assisted contracts. Failure by Non-Profit Entity to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as City deems appropriate, which may include, but is not limited to:

(i) Withholding monthly progress payments;

(ii) Assessing sanctions;

(iii) Liquidated damages; and/or

(iv) Disqualifying Non-Profit Entity from future bidding as non-responsible (49 C.F.R. § 26.13(b).

8. INCORPORATION OF FTA TERMS

This Agreement includes, in part, certain standard terms and conditions required by the USDOT and FTA, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by the USDOT, as set forth in FTA Circular 4220.1F, dated November 1, 2008, as revised by Rev. 1, dated April 14, 2009, Rev. 2, dated July 1, 2010, Rev. 3, dated February 14, 2011, and Rev. 4, dated March 18, 2013, as may be amended, are hereby incorporated by reference. Non-Profit Entity shall comply with all applicable FTA regulations, policies, procedures and directives, including those listed directly in or referred to in the current FTA Master Agreement. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. Non-Profit Entity shall not perform any act, fail to perform any act, or refuse to comply with any City requests which would cause the City to be in violation of FTA terms and conditions. Non-Profit Entity will include these requirements in all Contracts issued pursuant to this Agreement.

9. DEBARMENT AND SUSPENSION

2 C.F.R. part 180
2 C.F.R part 1200
2 C.F.R. § 200.213
2 C.F.R. part 200 Appendix II (I)

Executive Order 12549
Executive Order 12689

Non-Profit Entity shall comply and facilitate compliance with USDOT regulations, "Non-procurement Suspension and Debarment," 2 C.F.R. part 1200, which adopts and supplements the U.S. Office of Management and Budget (U.S. OMB) "Guidelines to Agencies on Government wide Debarment and Suspension (Non-procurement)," 2 C.F.R. part 180. These provisions apply to each contract at any tier of $25,000 or more, and to each contract at any tier for a federally required audit (irrespective of the contract amount), and to each contract at any tier that must be approved by an FTA official irrespective of the contract amount. As such, Non-Profit Entity shall verify that its principals, Affiliates, and Contractors are eligible to participate in this federally funded contract and are not presently declared by any federal department or agency to be:

(i) debarred from participation in any federally assisted award;

(ii) suspended from participation in any federally assisted award;

(iii) proposed for debarment from participation in any federally assisted award;

(iv) declared ineligible to participate in any federally assisted award;

(v) voluntarily excluded from participation in any federally assisted award; or

(vi) disqualified from participation in ay federally assisted award.

The certification in this clause is a material representation of fact relied upon by City. If it is later determined by City that Non-Profit Entity knowingly rendered an erroneous certification, in addition to remedies available to City, the federal government may pursue available remedies, including but not limited to suspension and/or debarment. Non-Profit Entity agrees to comply with the requirements of 2 C.F.R. part 180, subpart C, as supplemented by 2 C.F.R. part 1200 throughout the period of any contract that may arise from this Agreement or the Project. Non-Profit Entity further agrees to include a provision requiring such compliance in its lower tier covered transactions and agreements.

10. BUY AMERICA

49 U.S.C. 5323(j)
49 C.F.R. part 661
Pub. L. No. 117-58, §§ 70901-17

Non-Profit Entity agrees to comply with 49 U.S.C. 5323(j), 49 C.F.R. part 661, Pub. L. No. 117-58, §§ 70901-27, and 2 C.F.R. part 184, which provide that federal funds may not be obligated unless all steel, iron, manufactured products, and construction materials used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. § 661.7. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. § 661.11.

The Buy America requirements flow down from the City to Non-Profit Entity, which is responsible for ensuring that lower tier Contractors are in compliance.

In accordance with 49 C.F.R. § 661.6, for the procurement of steel, iron, manufactured products or construction materials, use the certifications below.

Certificate of Compliance with Buy America Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(1), the applicable regulations in 49 C.F.R. part 661, Pub. L. No. 117-58, §§ 70901-17 and 2 C.F.R. part 184.

Date: _____

Signature: _____

Company: _____

Name: _____

Title: _____

Certificate of Non-Compliance with Buy America Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2), as amended, the applicable regulations in 49 C.F.R. § 661.7, Pub. L. No. 117-58, §§ 70901-17 and 2 C.F.R. part 184.

Date: _____

Signature: _____

Company: _____

Name: _____

Title: _____

In accordance with 49 C.F.R. § 661.12, for the procurement of rolling stock (including train control, communication, and traction power equipment), use the certifications below.

Certificate of Compliance with Buy America Rolling Stock Requirements

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j), and the applicable regulations in 49 C.F.R. § 661.11.

Date: _____

Signature: _____

Company: _____

Name: _____

Title: _____

Certificate of Non-Compliance with Buy America Rolling Stock Requirements

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j), but it may qualify for an exception to the requirement pursuant to 49 U.S.C. 5323(j)(2)(C), as amended, and the applicable regulations in 49 C.F.R. § 661.7.

Date: _____

Signature: _____

Company: _____

Name: _____

Title: _____

11. RESOLUTION OF DISPUTES, BREACHES, OR OTHER LITIGATION

See Article 18 (Contract Dispute Procedures) of this Agreement.

12. LOBBYING RESTRICTIONS

31 U.S.C. § 1352
2 C.F.R. § 200.450
2 C.F.R. part 200 appendix II (J)
49 C.F.R. part 20

Non-Profit Entity certifies, to the best of its knowledge and belief, that:

(a) no federally appropriated funds have been paid or will be paid, by or on behalf of Non-Profit Entity, to any person for influencing or attempting to influence an officer or employee of an agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

(b) if any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this federal contract, grant, loan, or cooperative agreement, Non-Profit Entity shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(c) Non-Profit Entity shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including Contracts, sub-

grants, and Subcontracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

13. CLEAN AIR ACT AND CLEAN WATER ACT

42 U.S.C. §§ 7401 – 7671q
33 U.S.C. §§ 1251-1387
2 C.F.R. part 200, Appendix II (G)

The Clean Air and Federal Water Pollution Control Act requirements apply to each contract and subcontract exceeding $150,000.

Non-Profit Entity agrees:

(a) it will not use any violating facilities;

(b) it will report the use of facilities placed on or likely to be placed on the U.S. EPA "List of Violating Facilities";

(c) it will report violations of use of prohibited facilities to the FTA; and

(d) it will comply with the inspection and other requirements of the Clean Air Act, as amended, (42 U.S.C. §§ 7401 – 7671q) and the Federal Water Pollution Control Act, as amended, (33 U.S.C. §§ 1251-1387).

14. FLY AMERICA

49 U.S.C. § 40118
41 C.F.R. part 301-10
48 C.F.R. part 47.4

(a) As used in this clause "international air transportation" means transportation by air between a place in the United States and a place outside the United States or between two places both of which are outside the United States. "United States" means the 50 States, the District of Columbia, and outlying areas. "U.S.-flag air carrier" means an air carrier holding a certificate under 49 U.S.C. Chapter 411.

(b) When federal funds are used to fund travel, Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118) (Fly America Act) requires contractors, recipients, and others use U.S.-flag air carriers for U.S. government-financed international air transportation of personnel (and their personal effects) or property, to the extent that service by those carriers is available. It requires the Comptroller General of the United States, in the absence of satisfactory proof of the necessity for foreign-flag air transportation, to disallow

expenditures from funds, appropriated or otherwise established for the account of the United States, for international air transportation secured aboard a foreign-flag air carrier if a U.S.-flag air carrier is available to provide such services.

(c) if available, Non-Profit Entity, in performing work under this Agreement, shall use U.S.-flag carriers for international air transportation of personnel (and their personal effects) or property.

(d) In the event that Non-Profit Entity selects a carrier other than a U.S.-flag air carrier for international air transportation, Non-Profit Entity shall include a statement on vouchers involving such transportation essentially as follows:

Statement of Unavailability of U.S.-Flag Air Carriers

International air transportation of persons (and their personal effects) or property by U.S.-flag air carrier was not available or it was necessary to use foreign-flag air carrier service for the following reasons. See FAR § 47.403.

[State reasons]: _____

(End of statement)

(e) Non-Profit Entity shall include the substance of this clause, including this paragraph (e), in each Contract or purchase under this Agreement that may involve international air transportation.

15. EMPLOYEE PROTECTIONS

49 U.S.C. § 5333(a)
40 U.S.C. §§ 3141-3148
29 C.F.R. part 5
18 U.S.C. § 847
29 C.F.R. part 3
40 U.S.C. §§ 3701-3708
29 C.F.R. part 1926

15.1 PREVAILING WAGE AND COPELAND ANTI-KICKBACK ACT

For all prime construction, alteration or repair contracts in excess of $2,000 awarded by FTA, Non-Profit Entity shall comply with the Davis-Bacon Act and the Copeland “Anti-Kickback” Act. Under 49 U.S.C. § 5333(a), prevailing wage protections apply to laborers and mechanics employed on FTA assisted construction, alteration, or repair projects. Non-Profit Entity will comply with the Davis-Bacon Act, 40 U.S.C. §§ 3141-3144, and 3146-3148 as supplemented by DOL regulations at 29 C.F.R. part 5, “Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction.” In accordance with the statute, Non-Profit Entity shall pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, Non-Profit Entity agrees to pay wages not less than once a week. Non-Profit Entity shall also comply with the Copeland “Anti-Kickback” Act (40 U.S.C. § 3145), as supplemented by DOL regulations at 29 C.F.R. part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States.” Non-Profit Entity is prohibited from inducing, by any

means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled.

15.2 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

For all contracts in excess of $100,000 that involve the employment of mechanics or laborers, Non-Profit Entity shall comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701-3708), as supplemented by the DOL regulations at 29 C.F.R. part 5. Under 40 U.S.C. § 3702 of the Act, Non-Profit Entity shall compute the wages of every mechanic and laborer, including watchmen and guards, on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. § 3704 and DOL regulations, "Recording and Reporting Occupational Injuries and Illnesses," 29 C.F.R. part 1904; "Occupational Safety and Health Standards," 29 C.F.R. part 1910; and "Safety and Health Regulations for Construction," 29 C.F.R. part 1926 are applicable to construction work and provide that no laborer or mechanic be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchase of supplies or materials or articles ordinarily available on the open market, or to contracts for transportation or transmission of intelligence.

In the event of any violation of the clause set forth herein, Non-Profit Entity and any Contractor responsible therefor shall be liable for the unpaid wages. In addition, Non-Profit Entity and Contractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of this clause in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by this clause.

The FTA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by Non-Profit Entity or any Contractor under this Agreement or any Contract entered into in furtherance thereof or any other federal contract with Non-Profit Entity, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by Non-Profit Entity, such sums as may be determined to be necessary to satisfy any liabilities of Non-Profit Entity or any Contractor for unpaid wages and liquidated damages as provided in this section.

Non-Profit Entity or any Contractor shall insert in any Contracts the clauses set forth in this section and also a clause requiring the Contractors to include these clauses in any lower tier Contracts. Non-Profit Entity shall be responsible for compliance by any Contractor or lower tier Contractor with the clauses set forth in this Agreement.

15.3 CONTRACT WORK HOURS AND SAFETY STANDARDS FOR AWARDS NOT INVOLVING CONSTRUCTION

Non-Profit Entity shall comply with all federal laws, regulations, and requirements providing wage and hour protections for non-construction employees, in accordance with 40 U.S.C. § 3702, Contract Work Hours and Safety Standards Act, and other relevant parts of that Act, 40 U.S.C. § 3701 *et seq.*, and U.S. DOL regulations, "Labor Standards Provisions Applicable to Contracts

Covering Federally Financed and Assisted Construction (also Labor Standards Provisions Applicable to Non-construction Contracts Subject to the Contract Work Hours and Safety Standards Act)," 29 C.F.R. part 5.

Non-Profit Entity shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three (3) years from the completion of this Agreement for all laborers and mechanics, including guards and watchmen, working on this Agreement. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid.

Such records maintained under this paragraph shall be made available by Non-Profit Entity for inspection, copying, or transcription by authorized representatives of the FTA and the Department of Labor, and Non-Profit Entity will permit such representatives to interview employees during working hours on the job.

Non-Profit Entity shall require the inclusion of the language of this clause within Contracts of all tiers.

15.4 AWARDS INVOLVING COMMERCE

Non-Profit Entity agrees to comply with the Fair Labor Standards Act (FLSA), 29 U.S.C. § 201 *et seq.* to the extent that the FLSA applies to employees performing work involving commerce, and as the federal government otherwise determines applicable.

16. BONDING REQUIREMENTS

2 C.F.R. 200.326

See Section 10.2 (Performance Security) of this Agreement.

17. SEISMIC SAFETY

42 U.S.C. 7701 *et seq.*
49 C.F.R. part 41
Executive Order (E.O.) 12699

Non-Profit Entity agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for seismic safety required in Department of Transportation (DOT) seismic safety regulations 49 C.F.R. part 41 and will certify to compliance to the extent required by the regulation. Non-Profit Entity also agrees to ensure that all work performed under this Agreement, including work performed by a Contractor, is in compliance with the standards required by the seismic safety regulations and the certification of compliance issued on the project.

18. ENERGY CONSERVATION

42 U.S.C. 6321 et seq.
49 C.F.R. part 622, subpart C

These requirements apply to Non-Profit Entity and extend to all third-party contractors and their contracts at every tier and sub-recipients and their subcontracts at every tier.

Non-Profit Entity agrees to comply with mandatory standards and policies relating to energy efficiency, which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

19. RECYCLED PRODUCTS

42 U.S.C. § 6962
40 C.F.R. part 247
2 C.F.R. part § 200.322

These requirements apply to Non-Profit Entity and extend to all third-party contractors and their contracts and subcontracts at every tier where the value of an EPA designated item exceeds $10,000.

Non-Profit Entity agrees to provide a preference for those products and services that conserve natural resources, protect the environment, and are energy efficient by complying with and facilitating compliance with Section 6002 of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6962, and U.S. Environmental Protection Agency (U.S. EPA), "Comprehensive Procurement Guideline for Products Containing Recovered Materials," 40 C.F.R. part 247.

20. ADA ACCESS

Federal Protections for Individuals with Disabilities. The Americans with Disabilities Act of 1990, as amended (ADA), 42 U.S.C. Sections 12101 *et seq*., prohibits discrimination against qualified individuals with disabilities in programs, activities, and services, and imposes specific requirements on public and private entities. Non-Profit Entity must comply with its responsibilities under Titles I, II, III, IV, and V of the ADA in employment, public services, public accommodations, telecommunications, and other provisions, many of which are subject to regulations issued by other federal agencies.

21. SAFE OPERATION OF MOTOR VEHICLES

23 U.S.C. part 402
Executive Order No. 13043
Executive Order No. 13513
U.S. DOT Order No. 3902.10

The Safe Operation of Motor Vehicles requirements shall apply to Non-Profit Entity and all Contractors at every tier.

(a) **Seat Belt Use**. Non-Profit Entity is encouraged to adopt and promote on-the-job seat belt use policies and programs for its employees and other personnel that operate company-owned vehicles, company-rented vehicles, or personally operated vehicles. The terms "company-owned" and "company-leased" refer to vehicles owned or leased either by Non-Profit Entity or City.

(b) **Distracted Driving**. Non-Profit Entity agrees to adopt and enforce workplace safety policies to decrease crashes caused by distracted drivers, including policies to ban text messaging while using an electronic device supplied by an employer, and driving a vehicle the driver owns or rents, a vehicle Non-Profit Entity or Contactor owns, leases, or rents, or a privately-owned vehicle when on official business in connection with the work performed under this Agreement.

22. ENVIRONMENTAL PROTECTIONS

(a) **General**. Non-Profit Entity will comply with all applicable environmental and resource use laws, regulations, and requirements, and follow applicable guidance, now in effect or that may become effective in the future, including state and local laws, ordinances, regulations, and requirements and follow applicable guidance.

(b) **National Environmental Policy Act**. An award of federal assistance requires the full compliance with applicable environmental laws, regulations, and requirements. Accordingly, Non-Profit Entity shall:

(i) comply and facilitate compliance with federal laws, regulations, and requirements, including, but not limited to: (A) federal transit laws, such as 49 U.S.C. § 5323(c)(2), and 23 U.S.C. § 139; (B) the National Environmental Policy Act of 1969 (NEPA), as amended, 42 U.S.C. §§ 4321, et seq., as limited by 42 U.S.C. § 5159, and CEQ's implementing regulations 40 C.F.R. Part 1500 – 1508; (C) Joint FHWA and FTA regulations, "Environmental Impact and Related Procedures," 23 C.F.R. Part 771 and 49 C.F.R. Part 622; (D) Executive Order No. 11514, as amended, "Protection and Enhancement of Environmental Quality," March 5, 1970, 42 U.S.C. § 4321 note (35 Fed. Reg. 4247); and (E) other federal environmental protection laws, regulations, and requirements applicable to City or the Project.

(ii) follow the federal guidance identified herein to the extent that the guidance is consistent with applicable authorizing legislation: (A) Joint FHWA and FTA final guidance, "Interim Guidance on MAP-21 Section 1319, Accelerated Decision-making in Environmental Reviews," January 14, 2013; (B) Joint FHWA and FTA final guidance, "SAFETEA-LU Environmental Review Process (Public Law 109-59)," 71 Fed. Reg. 66576, November 15, 2006; and (C) other federal environmental guidance applicable to the Project.

(c) **Other Environmental Federal Laws**. Non-Profit Entity will comply or facilitate compliance with all applicable federal laws, regulations, and requirements, and will follow applicable guidance, including, but not limited to, the Clean Air Act, Clean Water Act, Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§ 1271-1287), Coastal Zone Management Act of 1972, the Endangered Species Act of 1973, Magnuson Stevens Fishery Conservation and Management Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, Executive Order No. 11990 relating to "Protection of Wetlands," and Executive Order No. 11988, as amended, "Floodplain Management."

(d) **Use of Certain Public Lands**. Non-Profit Entity will comply with USDOT laws, specifically 49 U.S.C. § 303 (often referred to as "section 4(f)"), and joint FHWA and FTA regulations, "Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites," 23 C.F.R. Part 774, and referenced in 49 C.F.R. Part 622.

(e) **Historic Preservation**. Non-Profit Entity will:

(i) comply with USDOT laws, including 49 U.S.C. § 303 (often referred to as "section 4(f)"), which requires certain findings be made before an award may be undertaken if it involves the use of any land from a historic site that is on or eligible for inclusion on the National Register of Historic Places;

(ii) encourage compliance with the federal historic and archaeological preservation requirements of section 106 of the National Historic Preservation Act, as amended, 54 U.S.C. § 306108;

(iii) comply with the Archeological and Historic Preservation Act of 1974, as amended, 54 U.S.C. § 312501, et seq.;

(iv) comply with U.S. Advisory Council on Historic Preservation regulations, "Protection of Historic Properties," 36 C.F.R. Part 800; and

(v) comply with federal requirements and follow federal guidance to avoid or mitigate adverse effects on historic properties.

(f) **Indian Sacred Sites**. Non-Profit Entity will facilitate compliance with federal efforts to promote the preservation of places and objects of religious importance to American Indians, Eskimos, Aleuts, and Native Hawaiians, and facilitate compliance with the American Indian Religious Freedom Act, 42 U.S.C. § 1996, and Executive Order No. 13007, "Indian Sacred Sites," May 24, 1996, 42 U.S.C. § 3161 note (61 Fed. Reg. 26771).

(g) **Mitigation of Adverse Environmental Effects.** Non-Profit Entity agrees to comply with all environmental mitigation measures that may be identified as conditions that the federal government might impose in its finding of no significant impact or record of decision or commitments in the environmental documents that apply to the Contract, such as environmental assessments, environmental impact statements, categorical exclusions, memoranda of agreement, documents required under 49 U.S.C. § 303, and other environmental documents. Non-Profit Entity agrees that:

(i) Any mitigation measures agreed on will be incorporated by reference and made part of the Contract;

(ii) Any deferred mitigation measures will be incorporated by reference and made part of the Contract as soon as agreement with the federal government is reached; and

(iii) Any mitigation measures agreed on will not be modified or withdrawn without the written approval of the federal government.

23. FEDERAL TAX LIABILITY AND RECENT FELONY CONVICTIONS

(a) **Transactions Prohibited**. Non-Profit Entity must certify that it:

(i) does not have any unpaid federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with authority responsible for collecting the tax liability; and

(ii) was not convicted of the felony criminal violation under any federal law within the preceding 24 months from the Effective Date.

If Non-Profit Entity cannot so certify, City agrees to refer the matter to FTA and not to enter into any contract with Non-Profit Entity without FTA's written approval.

(b) **Flow-Down.** Non-Profit Entity shall include this requirement in Contracts at all lower tiers, without regard to the value of such Contracts.

24. NOTIFICATION TO FTA

If a current or prospective legal matter that may affect the federal government emerges, Non-Profit Entity must notify City, who will promptly notify the FTA Chief Counsel, FTA Headquarters Manager that administers the underlying agreement or FTA Regional Counsel for the region in which City is located. Non-Profit Entity must include a similar notification requirement in its sub-agreements at every tier, for any agreement that is a "covered transaction" according to 2 C.F.R. §§ 180.220 and 1200.220.

(a) **Types**. The types of legal matters that require notification include, but are not limited to, a major dispute, breach, default, litigation, or naming any federal government as a party to litigation or a legal disagreement in any forum for any reason.

(b) **Matters**. Matters that may affect any federal government include, but are not limited to, the federal government's interests in the award, this Agreement, and any amendments thereto, or the any federal government's administration or enforcement of federal laws, regulations, and requirements.

(c) **Additional Notice to U.S. DOT Inspector General**. Non-Profit Entity must notify City, who will promptly notify the USDOT Inspector General in addition to the FTA Chief Counsel, FTA Headquarters Manager that administers the underlying agreement or Regional Counsel for the Region in which City is located, if Non-Profit Entity has knowledge of potential fraud, waste, or abuse occurring on a project receiving assistance from FTA. The notification provision applies if a person has or may have submitted a false claim under the False Claims Act, 31 U.S.C. § 3729, et seq., or has or may have committed a criminal or civil violation of law pertaining to such matters as fraud, conflict of interest, bid rigging, misappropriation or embezzlement, bribery, gratuity, or similar misconduct involving federal assistance. This responsibility occurs whether the Project is subject to any agreement between City and FTA. Knowledge, as used in this paragraph, includes, but is not limited to, knowledge of a criminal or civil investigation by a federal, state, or local law enforcement or other investigative

agency, a criminal indictment or civil complaint, or probable cause that could support a criminal indictment, or any other credible information in the possession of Non-Profit Entity. In this paragraph, "promptly" means to refer information without delay and without change.

25. PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

(a) Pursuant to section 889 of the National Defense Authorization Act of 2019 (H.R. 5515 at pp. 282-284; Pub. L. 115-232) (NDAA), and as promulgated at 2 C.F.R. § 200.216, Non-Profit Entity and any Contractor at any tier shall not procure or obtain the Covered Equipment and Services in the performance of work for the Project or in connection with this Agreement.

(b) "Covered Equipment and Services" is defined to include any telecommunication or video surveillance equipment, systems, or services produced or provided by any of the following entities, or any subsidiary or affiliate of the following entities:

(i) Huawei Technologies Company;

(ii) ZTE Corporation;

(iii) Hytera Communications Corporation;

(iv) Hangzhou Hikivision Digital Technology Company;

(v) Dahua Technology Company; and

(vi) any entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(c) The burden of proof for the origin or place of production of telecommunications or video surveillance equipment, systems, or services is the responsibility of Non-Profit Entity.

(d) Prior to the use of any telecommunication or video surveillance equipment, systems, or services pursuant to this Agreement, Non-Profit Entity shall furnish a certification to City stating that the telecommunication or video surveillance equipment, systems, or services are not Covered Equipment and Services pursuant to this Article 26 (Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment), 2 C.F.R. § 200.216, and the NDAA.

26. SENSITIVE SECURITY INFORMATION

Non-Profit Entity must protect, and take measures to ensure that its Contractors at each tier protect "sensitive security information" made available during the administration of this Agreement or any Contract to ensure compliance with 49 U.S.C. Section 40119(b) and implementing USDOT regulations, "Protection of Sensitive Security Information," 49 C.F.R. Part

15, and with 49 U.S.C. Section 114(r) and implementing Department of Homeland Security regulations, "Protection of Sensitive Security Information," 49 C.F.R. Part 1520.

27. FLOOD INSURANCE

Non-Profit Entity agree to comply with flood insurance laws and guidance as follows:

(a) It will have flood insurance as required by the Flood Disaster Protection Act of 1973, 42 U.S.C. § 4012a(a), for any building located in a special flood hazard area (100-year flood zone), before accessing federal assistance to acquire, construct, reconstruct, repair, or improve that building.

(b) Each such building and its contents will be covered by flood insurance in an amount at least equal to the federal investment (less estimated land cost) or to the maximum limit of coverage made available with respect to the particular type of property under the National Flood Insurance Act of 1968, 42 U.S.C. § 4001, et seq., whichever is less.

(c) It will follow FTA guidance, except to the extent FTA determines otherwise in writing.

28. PROMPT PAYMENT AND RETENTION

(a) **Payment of Contractors**. Non-Profit Entity shall pay the PPC and any other Contractors with a direct contract with Non-Profit Entity within 30 days from receipt of each payment made to Non-Profit Entity by City or any Lender. The 30 days is applicable unless a shorter time period controls as provided in Section 9.4 (Prompt Payment to Contractors) of this Agreement. Any delay or postponement of payment over 30 days (or any controlling shorter period) may occur only for good cause and with the prior written approval of City.

(b) **Retention of Funds**.

(i) No standard retention will be withheld by City from payments due to Non-Profit Entity.

(ii) Any retention withheld by Non-Profit Entity or Contractors from Progress Payments due applicable Contractors shall be promptly paid in full to Contractors within 30 days (or any shorter time period that controls as provided in Section 9.4 (Prompt Payment to Contractors) of this Agreement) after the Contractor's work is satisfactorily completed. Non-Profit Entity shall assure that each Contract contains a clause obligating Non-Profit Entity or the applicable Contractor to make prompt and full payment of any retention kept by Non-Profit Entity or the applicable Contractor to the Subcontractor within such time period. For this purpose, a Contractor's work is satisfactorily completed when all the tasks called for in the Contract have been accomplished and documented as required by City.

(c) When City has made an incremental acceptance of a portion of the D&C Work, the Work of a Contractor covered by that acceptance is deemed to be satisfactorily

completed. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to Non-Profit Entity or Contractor in the event of a dispute involving late payment or nonpayment by Non-Profit Entity, deficient Contractor performance, or noncompliance by a Contractor.

(d) This Section applies to both SBE and non-SBE Contractors.

29. TRAFFICKING IN PERSONS

29.1 LEGAL AUTHORITIES

Non-Profit Entity agrees to comply, and assures the compliance of each lower tier contractor and subcontractor, with federal requirements and guidance, including:

(a) Section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended, 22 U.S.C. § 7104(g); and

(b) The terms of this section 4(f), which have been derived from U.S. OMB regulatory guidance, "Award Term for Trafficking in Persons," 2 CFR Part 175, per U.S. OMB's direction.

29.2 DEFINITIONS

Non-Profit Entity agrees that for purposes of this Section 30:

(a) **Employee** means either an individual who is employed by Non-Profit Entity or any lower tier contractor or subcontractor, and is participating in the Project or related activities, including, but not limited to, a volunteer or an individual whose services are contributed by Non-Profit Entity or its lower tier contractor or subcontractor as an in-kind contribution toward the Project.

(b) **Forced labor** means labor obtained by recruitment, harboring, transportation, provision, or other means of obtaining of a person for labor or services through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.

(c) **Private entity** means any entity other than a state, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR § 175.25, and includes a for-profit organization, or a nonprofit organization, including any nonprofit organization of higher education, hospital, or tribal organization other than one included in the definition of Indian Tribe at 2 CFR § 175.25(b).

(d) **Severe forms of trafficking in persons** has the meaning given at section 103 of the TVPA, as amended, 22 U.S.C. § 7102.

(e) **Commercial sex act** has the meaning given at section 103 of the TVPA, as amended, 22 U.S.C. § 7102.

(f) **Coercion** has the meaning given at section 103 of the TVPA, as amended, 22 U.S.C. § 7102.

29.3 PROVISIONS APPLICABLE TO NON-PROFIT ENTITY

Non-Profit Entity agrees to, and assures that its Subrecipients will:

(a) **Provide Information.** Inform City immediately of any information it receives from any source alleging a violation of the prohibitions listed in this Section 30; and

(b) **Subagreement Provision.** Include the following provision in any lower tier contract or subcontract it enters into with a private entity as defined above in Section 30.2(c):

> *[Lower tier contractor or subcontractor] agrees that it and its employees that participate in the Recipient's Award, may not:*
>
> - *Engage in severe forms of trafficking in persons during the period of time that the Recipient's Award is in effect,*
> - *Procure a commercial sex act during the period of time that the Recipient's Award is in effect, or*
> - *Use forced labor in the performance of the Recipient's Award or subagreements thereunder.*

(c) **Prohibitions.** It, its employees, its lower tier contractors and subcontractors, and its lower tier contractors' and subcontractors' employees that participate in the Contract or lower tier contract or subcontract, as applicable, will not:

(i) Engage in severe forms of trafficking in persons during the period of time that the Contract or lower tier contract or subcontract, as applicable, is in effect

(ii) Procure a commercial sex act during the period of time that the Contract or lower tier contract or subcontract, as applicable, is in effect; or

(iii) Use forced labor in the performance of the Contract or lower tier contract or subcontract, as applicable.

(d) **Termination.** In accordance with the FTA's right to unilaterally terminate the underlying agreement pursuant to Section 106(g) of the TVPA, as amended, 22 U.S.C. § 7104(g), and U.S. OMB regulatory guidance, "Award Term for Trafficking in Persons," 2 CFR Part 175, this Contract will be terminated if City determines that Non-Profit Entity or any lower tier contractor or subcontractor:

(i) Has violated a prohibition described above in Section 30.3(c); or

(ii) Has an employee whose conduct is determined to have violated a prohibition described above in Section 30.3(c) because that employee's conduct is either (A) associated with the performance of the Contract, or (B) imputed to the City using the standards of due process for conduct of an individual to an organization provided in (1) U.S. DOT regulations, "Nonprocurement Suspension and Debarment," 2 CFR Part 1200, or (2)

U.S. OMB regulatory guidance, “Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement),” 2 CFR Part 180.

30. CARGO PREFERENCE

46 U.S.C. § 55305
46 C.F.R. PART 381

Non-Profit Entity agrees:

(a) To use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying Contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels;

(b) To furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to City (through Non-Profit Entity in the case of a lower tier contractor’s or subcontractor's bill-of-lading.); and

(c) To include these requirements in all lower tier contracts and subcontracts issued pursuant to this Contract when the lower tier contract or subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

31. VETERANS PREFERENCE

As provided in 49 U.S.C. § 5325(k), to the extent practicable, Non-Profit Entity agrees and assures that each of its lower tier contractors and subcontractors:

(a) Will give a hiring preference to veterans, as defined in 5 U.S.C. § 2108, who have the skills and abilities required to perform construction work required under the Contract or a lower tier contract or subcontract in connection with the Project; and

(b) Will not require an employer to give a preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or a former employee.

32. MOTOR CARRIER SAFETY

(a) **Financial Responsibility.** Non-Profit Entity agrees to comply, and assures that its lower tier contractors and subcontractors will comply with the economic and insurance registration requirements of the:

(i) U.S. Federal Motor Carrier Safety Administration (U.S. FMCSA) regulations, “Minimum Levels of Financial Responsibility for Motor

Carriers," 49 CFR part 387, if it is engaged in operations requiring compliance with 49 CFR part 387, it is engaged in interstate commerce, and it is not within a defined commercial zone; and

(ii) The provisions of 49 U.S.C. § 31138(e)(4), which supersede inconsistent provisions of 49 CFR part 387, and reduce the amount of insurance the Non-Profit Entity must obtain to the highest amount required by any state in which the public transportation provider operates, if it operates within a public transportation service area located in more than one state, and receives federal assistance under 49 U.S.C. §§ 5307, 5310, and 5311.

(b) **U.S. FMCSA Requirements.** Non-Profit Entity agrees to comply, and assures that its lower tier contractors and subcontractors will comply with:

(i) The safety requirements of U.S. FMCSA regulations, "Federal Motor Carrier Safety Regulations," 49 CFR Parts 390 – 397, to the extent applicable; and

(ii) The driver's license requirements of U.S. FMCSA regulations, "Commercial Driver's License Standards, Requirements, and Penalties," 49 CFR Part 383, and "State Compliance with Commercial Driver's License," 49 CFR Part 384, to the extent applicable, with the substance abuse requirements and guidance of U.S. FMCSA's regulations, "Controlled Substances and Alcohol Use and Testing," 49 CFR Part 382, and implementing federal guidance, to the extent applicable.

EXHIBIT 16B

STATE REQUIREMENTS

Non-Profit Entity shall perform its obligations under the Contract Documents in accordance with the following requirements.

1. LABOR CODE REQUIREMENTS

1.1 Worker's Compensation

Non-Profit Entity shall comply with the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and to secure the payment of compensation to his or her employees. Before commencing the Work, Non-Profit Entity and Contractors will sign and file a certification with City under Labor Code Section 1861 stating the following:

> *I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of any work or services under the Agreement, any contract or subcontract.*

1.2 Prevailing Wages

Pursuant to the provisions of Section 1773 of the State Labor Code, City has obtained the general prevailing rate of wages (which rate includes employer payments for health and welfare, pension, vacation, travel time and subsistence pay as provided for in Section 1773.8 of said Code, apprenticeship or other training programs authorized by Section 3093 of said Code, and similar purposes) applicable to the Work to be done, for straight time, overtime, Saturday, Sunday, and holiday work. The holiday wage rate listed shall be applicable to all holidays recognized in the collective bargaining agreement of the particular craft, classification or type of worker concerned. Said prevailing wage rates are incorporated herein by reference. These prevailing rates of wages will be furnished to Non-Profit Entity and other interested parties on request and are on file at City's offices. These wage rates are also available through the California State Department of Industrial Relations at http://www.dir.ca.gov. For crafts or classifications not shown on the prevailing wage determinations, Non-Profit Entity may be required to pay the wage rate of the most closely related craft or classification shown in such determinations for the Work. Non-Profit Entity shall post a copy of the prevailing wage rates at the jobsite or material staging area. Workers employed in the Work must be paid at the rates at least equal to the prevailing wage rates as adopted. This Agreement is also subject to federal requirements for payment of prevailing wages as determined by the Secretary of Labor. Where there are differences in the rates, the higher shall apply.

1.3 Hours of Work/Overtime Requirements

Eight hours labor constitutes a legal day's work. Neither Non-Profit Entity nor any Contractor shall require or permit any worker to work in excess of eight hours in any one calendar day or in excess of 40 hours in any one calendar week (defined as seven sequential calendar days)

unless such worker receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of eight hours in any one calendar day or in excess of 40 hours in any one calendar week, whichever is greater. Failure to comply with the preceding requirements shall subject Non-Profit Entity to the penalties specified in Labor Code Section 1813.

1.4 Payroll Records

(a) Non-Profit Entity and each Contractor performing any portion of the Work under this Agreement shall keep an accurate payroll record as required by Law (California Labor Code Section 1776), including showing the name, address, social security number, work classification, straight time and overtime hours for each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, professional, salaried, or other employee employed by him or her in connection with the Work.

(b) The payroll records of Non-Profit Entity and each Contractor (including payroll records for professional or salaried employees) shall be certified and shall be available for inspection at the principal office of Non-Profit Entity.

(c) Non-Profit Entity shall file a certified copy of the payroll records (including those applicable to professional and salaried employees) with City within 10 days after receipt of a written request from City.

(d) Non-Profit Entity shall inform City of the location of said payroll records, including the street address, city and county, and shall, within five days, provide a Notice of change of location and address of said payroll records.

(e) It shall be the responsibility of Non-Profit Entity to ensure compliance for itself and the Contractors with the provisions of this section.

(f) In the event of noncompliance with the requirements of this section, Non-Profit Entity shall have 10 days in which to comply subsequent to receipt of written Notice specifying in what respect it must comply. Should noncompliance exist after the said 10-day period, Non-Profit Entity shall be subject to a fee of $50.00 for each day, or portion thereof, for each worker to whom the noncompliance pertains, until strict compliance is effectuated. Non-Profit Entity acknowledges that, without limitation as to other remedies of enforcement available to City, upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the California Department of Industrial Relations, such penalties shall be withheld from payments due Non-Profit Entity.

(g) Certified payroll records shall be submitted to City by Non-Profit Entity and all Contractors performing work on the Project regardless of dollar amount or type of contract.

(h) The period covered shall be from the time Work starts until all Work is completed on the Project. Failure to submit said certified payrolls on time may result in the withholding of payments to Non-Profit Entity and the assessment of penalties as set forth in the California Labor Code.

1.5 Specific Labor Code Provisions

Non-Profit Entity's attention is directed to the following requirements of the Labor Code. Non-Profit Entity shall cause Contractors to insert in any Contracts a copy of each such Code section and shall also cause Subcontractors to include these clauses in any lower tier Subcontracts. Non-Profit Entity shall be responsible for the compliance by any Contractor or Subcontractor with the clauses set forth in this Section 1.5 (Specific Labor Code Provisions), as may be amended and updated from time to time.

Labor Code Section 1725.5

1725.5. A contractor shall be registered pursuant to this section to be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any public work contract that is subject to the requirements of this chapter. For the purposes of this section, "contractor" includes a subcontractor as defined by Section 1722.1.

(a) To qualify for registration under this section, a contractor shall do all of the following:

(1) (A) Register with the Department of Industrial Relations in the manner prescribed by the department and pay an initial nonrefundable application fee of four hundred dollars ($400) to qualify for registration under this section and an annual renewal fee on or before July 1 of each year thereafter. The annual renewal fee shall be in a uniform amount set by the Director of Industrial Relations, and the initial registration and renewal fees may be adjusted no more than annually by the director to support the costs specified in Section 1771.3.

(B) Beginning June 1, 2019, a contractor may register or renew according to this subdivision in annual increments up to three years from the date of registration. Contractors who wish to do so will be required to prepay the applicable nonrefundable application or renewal fees to qualify for the number of years for which they wish to preregister.

(2) Provide evidence, disclosures, or releases as are necessary to establish all of the following:

(A) Workers' compensation coverage that meets the requirements of Division 4 (commencing with Section 3200) and includes sufficient coverage for any worker whom the contractor employs to perform work that is subject to prevailing wage requirements other than a contractor who is separately registered under this section. Coverage may be evidenced by a current and valid certificate of workers' compensation insurance or certification of self-insurance required under Section 7125 of the Business and Professions Code.

(B) If applicable, the contractor is licensed in accordance with Chapter 9 (commencing with Section 7000) of the Business and Professions Code.

(C) The contractor does not have any delinquent liability to an employee or the state for any assessment of back wages or related damages, interest, fines, or penalties pursuant to any final judgment, order, or determination by a court or any federal, state, or local

administrative agency, including a confirmed arbitration award. However, for purposes of this paragraph, the contractor shall not be disqualified for any judgment, order, or determination that is under appeal, provided that the contractor has secured the payment of any amount eventually found due through a bond or other appropriate means.

(D) The contractor is not currently debarred under Section 1777.1 or under any other federal or state law providing for the debarment of contractors from public works.

(E) The contractor has not bid on a public works contract, been listed in a bid proposal, or engaged in the performance of a contract for public works without being lawfully registered in accordance with this section, within the preceding 12 months or since the effective date of the requirements set forth in subdivision (e), whichever is earlier. If a contractor is found to be in violation of the requirements of this paragraph, the period of disqualification shall be waived if both of the following are true:

(i) The contractor has not previously been found to be in violation of the requirements of this paragraph within the preceding 12 months.

(ii) The contractor pays an additional nonrefundable penalty registration fee of two thousand dollars ($2,000).

(b) Fees received pursuant to this section shall be deposited in the State Public Works Enforcement Fund established by Section 1771.3 and shall be used only for the purposes specified in that section.

(c) A contractor who fails to pay the renewal fee required under paragraph (1) of subdivision (a) on or before the expiration of any prior period of registration shall be prohibited from bidding on or engaging in the performance of any contract for public work until once again registered pursuant to this section. If the failure to pay the renewal fee was inadvertent, the contractor may renew its registration retroactively by paying an additional nonrefundable penalty renewal fee equal to the amount of the renewal fee within 90 days of the due date of the renewal fee.

(d) If, after a body awarding a contract accepts the contractor's bid or awards the contract, the work covered by the bid or contract is determined to be a public work to which Section 1771 applies, either as the result of a determination by the director pursuant to Section 1773.5 or a court decision, the requirements of this section shall not apply, subject to the following requirements:

(1) The body that awarded the contract failed, in the bid specification or in the contract documents, to identify as a public work that portion of the work that the determination or decision subsequently classifies as a public work.

(2) Within 20 days following service of notice on the awarding body of a determination by the Director of Industrial Relations pursuant to Section 1773.5 or a decision by a court that the contract was for public work as defined in this chapter, the contractor and any subcontractors are registered under this section or are replaced by a contractor or subcontractors who are registered under this section.

(3) The requirements of this section shall apply prospectively only to any subsequent bid, bid proposal, contract, or work performed after the awarding body is served with of the determination or decision referred to in paragraph (2).

(e) The requirements of this section shall apply to any bid proposal submitted on or after March 1, 2015, to any contract for public work, as defined in this chapter, executed on or after April 1, 2015, and to any work performed under a contract for public work on or after January 1, 2018, regardless of when the contract for public work was executed.

(f) This section does not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work.

Labor Code Section 1735

1735. A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter.

Labor Code Section 1771

1771. Except for public works projects of one thousand dollars ($1,000) or less, not less than the general prevailing rate of per diem wages for work of a similar character in the locality in which the public work is performed, and not less than the general prevailing rate of per diem wages for holiday and overtime work fixed as provided in this chapter, shall be paid to all workers employed on public works.

This section is applicable only to work performed under contract, and is not applicable to work carried out by a public agency with its own forces. This section is applicable to contracts let for maintenance work.

Labor Code Section 1771.1

1771.1 (a) A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

(b) Notice of the requirement described in subdivision (a) shall be included in all bid invitations and public works contracts, and a bid shall not be accepted nor any contract or subcontract entered into without proof of the contractor or subcontractor's current registration to perform public work pursuant to Section 1725.5.

(c) An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive, provided that any of the following apply:

(1) The subcontractor is registered prior to the bid opening.

(2) Within 24 hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.

(3) The subcontractor is replaced by another registered subcontractor pursuant to Section 4107 of the Public Contract Code.

(d) Failure by a subcontractor to be registered to perform public work as required by subdivision (a) shall be grounds under Section 4107 of the Public Contract Code for the contractor, with the consent of the awarding authority, to substitute a subcontractor who is registered to perform public work pursuant to Section 1725.5 in place of the unregistered subcontractor.

(e) The department shall maintain on its Internet Web site a list of contractors who are currently registered to perform public work pursuant to Section 1725.5.

(f) A contract entered into with any contractor or subcontractor in violation of subdivision (a) shall be subject to cancellation, provided that a contract for public work shall not be unlawful, void, or voidable solely due to the failure of the awarding body, contractor, or any subcontractor to comply with the requirements of Section 1725.5 or this section.

(g) If the Labor Commissioner or his or her designee determines that a contractor or subcontractor engaged in the performance of any public work contract without having been registered in accordance with this section, the contractor or subcontractor shall forfeit, as a civil penalty to the state, one hundred dollars ($100) for each day of work performed in violation of the registration requirement, not to exceed an aggregate penalty of eight thousand dollars ($8,000) in addition to any penalty registration fee assessed pursuant to clause (ii) of subparagraph (E) of paragraph (2) of subdivision (a) of Section 1725.5.

(h) (1) In addition to, or in lieu of, any other penalty or sanction authorized pursuant to this chapter, a higher tiered public works contractor or subcontractor who is found to have entered into a subcontract with an unregistered lower tier subcontractor to perform any public work in violation of the requirements of Section 1725.5 or this section shall be subject to forfeiture, as a civil penalty to the state, of one hundred dollars ($100) for each day the unregistered lower tier subcontractor performs work in violation of the registration requirement, not to exceed an aggregate penalty of ten thousand dollars ($10,000).

(2) The Labor Commissioner shall use the same standards specified in subparagraph (A) of paragraph (2) of subdivision (a) of Section 1775 when determining the severity of the violation and what penalty to assess, and may waive the penalty for a first time violation that was unintentional and did not hinder the Labor Commissioner's ability to monitor and enforce compliance with the requirements of this chapter.

(3) A higher tiered public works contractor or subcontractor shall not be liable for penalties assessed pursuant to paragraph (1) if the lower tier subcontractor's performance is in violation of the requirements of Section 1725.5 due to the revocation of a previously approved registration.

(4) A subcontractor shall not be liable for any penalties assessed against a higher tiered public works contractor or subcontractor pursuant to paragraph (1). A higher tiered public works contractor or subcontractor may not require a lower tiered subcontractor to indemnify or otherwise be liable for any penalties pursuant to paragraph (1).

(i) The Labor Commissioner or his or her designee shall issue a civil wage and penalty assessment, in accordance with the provisions of Section 1741, upon determination of penalties pursuant to subdivision (g) and subparagraph (B) of paragraph (1) of subdivision (h). Review of a civil wage and penalty assessment issued under this subdivision may be requested in accordance with the provisions of Section 1742. The regulations of the Director of Industrial Relations, which govern proceedings for review of civil wage and penalty assessments and the withholding of contract payments under Article 1 (commencing with Section 1720) and Article 2 (commencing with Section 1770), shall apply.

(j) (1) Where a contractor or subcontractor engages in the performance of any public work contract without having been registered in violation of the requirements of Section 1725.5 or this section, the Labor Commissioner shall issue and serve a stop order prohibiting the use of the unregistered contractor or the unregistered subcontractor on all public works until the unregistered contractor or unregistered subcontractor is registered. The stop order shall not apply to work by registered contractors or subcontractors on the public work.

(2) A stop order may be personally served upon the contractor or subcontractor by either of the following methods:

(A) Manual delivery of the order to the contractor or subcontractor personally.

(B) Leaving signed copies of the order with the person who is apparently in charge at the site of the public work and by thereafter mailing copies of the order by first class mail, postage prepaid to the contractor or subcontractor at one of the following:

(i) The address of the contractor or subcontractor on file with either the Secretary of State or the Contractors' State License Board.

(ii) If the contractor or subcontractor has no address on file with the Secretary of State or the Contractors' State License Board, the address of the site of the public work.

(3) The stop order shall be effective immediately upon service and shall be subject to appeal by the party contracting with the unregistered contractor or subcontractor, by the unregistered contractor or subcontractor, or both. The appeal, hearing, and any further review of the hearing decision shall be governed by the procedures, time limits, and other requirements specified in subdivision (a) of Section 238.1.

(4) Any employee of an unregistered contractor or subcontractor who is affected by a work stoppage ordered by the commissioner pursuant to this subdivision shall be paid at his or her regular hourly prevailing wage rate by that employer for any hours the employee would have worked but for the work stoppage, not to exceed 10 days.

(k) Failure of a contractor or subcontractor, owner, director, officer, or managing agent of the contractor or subcontractor to observe a stop order issued and served upon him or her pursuant to subdivision (j) is guilty of a misdemeanor punishable by imprisonment in county jail not exceeding 60 days or by a fine not exceeding ten thousand dollars ($10,000), or both.

(l) This section shall apply to any bid proposal submitted on or after March 1, 2015, and any contract for public work entered into on or after April 1, 2015. This section shall also apply to the performance of any public work, as defined in this chapter, on or after January 1, 2018, regardless of when the contract for public work was entered.

(m) Penalties received pursuant to this section shall be deposited in the State Public Works Enforcement Fund established by Section 1771.3 and shall be used only for the purposes specified in that section.

(n) This section shall not apply to work performed on a public works project of twenty-five thousand dollars ($25,000) or less when the project is for construction, alteration, demolition, installation, or repair work or to work performed on a public works project of fifteen thousand dollars ($15,000) or less when the project is for maintenance work.

Labor Code Section 1771.4

1771.4 (a) All of the following are applicable to all public works projects that are otherwise subject to the requirements of this chapter:

(1) The call for bids and contract documents shall specify that the project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

(2) The awarding body shall post or require the prime contractor to post job site notices, as prescribed by regulation.

(3) Each contractor and subcontractor shall furnish the records specified in Section 1776 directly to the Labor Commissioner, in the following manner:

(A) At least monthly or more frequently if specified in the contract with the awarding body.

(B) In a format prescribed by the Labor Commissioner.

(4) If the contractor or subcontractor is not registered pursuant to Section 1725.5 and is performing work on a project for which registration is not required because of subdivision (f) of Section 1725.5, the unregistered contractor or subcontractor is not required to furnish the records specified in Section 1776 directly to the Labor Commissioner but shall retain the records specified in Section 1776 for at least three years after completion of the work.

(5) The department shall undertake those activities it deems necessary to monitor and enforce compliance with prevailing wage requirements.

(b) The Labor Commissioner may exempt a public works project from compliance with all or part of the requirements of subdivision (a) if either of the following occurs:

(1) The awarding body has enforced an approved labor compliance program, as defined in Section 1771.5, on all public works projects under its authority, except those deemed exempt pursuant to subdivision (a) of Section 1771.5, continuously since December 31, 2011.

(2) The awarding body has entered into a collective bargaining agreement that binds all contractors performing work on the project and that includes a mechanism for resolving disputes about the payment of wages.

(c) The requirements of paragraph (1) of subdivision (a) shall only apply to contracts for public works projects awarded on or after January 1, 2015.

(d) The requirements of paragraph (3) of subdivision (a) shall apply to all contracts for public work, whether new or ongoing, on or after January 1, 2016.

Labor Code Section 1775

1775. (a) (1) The contractor and any subcontractor under the contractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit not more than two hundred dollars ($200) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rates as determined by the director for the work or craft in which the worker is employed for any public work done under the contract by the contractor or, except as provided in subdivision (b), by any subcontractor under the contractor.

(2) (A) The amount of the penalty shall be determined by the Labor Commissioner based on consideration of both of the following:

(i) Whether the failure of the contractor or subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor.

(ii) Whether the contractor or subcontractor has a prior record of failing to meet its prevailing wage obligations.

(B) (i) The penalty may not be less than forty dollars ($40) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, unless the failure of the contractor or subcontractor to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of the contractor or subcontractor.

(ii) The penalty may not be less than eighty dollars ($80) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the contractor or subcontractor has been assessed penalties within the previous three years for failing to meet its prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned.

(iii) The penalty may not be less than one hundred twenty dollars ($120) for each calendar day, or portion thereof, for each worker paid less than the prevailing wage rate, if the Labor Commissioner determines that the violation was willful, as defined in subdivision (c) of Section 1777.1.

(C) If the amount due under this section is collected from the contractor or subcontractor, any outstanding wage claim under Chapter 1 (commencing with Section 1720) of Part 7 of Division 2 against that contractor or subcontractor shall be satisfied before applying that amount to the penalty imposed on that contractor or subcontractor pursuant to this section.

(D) The determination of the Labor Commissioner as to the amount of the penalty shall be reviewable only for abuse of discretion.

(E) The difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the contractor or subcontractor, and the body awarding the contract shall cause to be inserted in the contract a stipulation that this section will be complied with.

(b) If a worker employed by a subcontractor on a public works project is not paid the general prevailing rate of per diem wages by the subcontractor, the prime contractor of the project is not liable for any penalties under subdivision (a) unless the prime contractor had knowledge of that failure of the subcontractor to pay the specified prevailing rate of wages to those workers or unless the prime contractor fails to comply with all of the following requirements:

(1) The contract executed between the contractor and the subcontractor for the performance of work on the public works project shall include a copy of the provisions of Sections 1771, 1776, 1777.5, 1813, and 1815.

(2) The contractor shall monitor the payment of the specified general prevailing rate of per diem wages by the subcontractor to the employees, by periodic review of the certified payroll records of the subcontractor.

(3) Upon becoming aware of the failure of the subcontractor to pay his or her workers the specified prevailing rate of wages, the contractor shall diligently take corrective action

to halt or rectify the failure, including, but not limited to, retaining sufficient funds due the subcontractor for work performed on the public works project.

(4) Prior to making final payment to the subcontractor for work performed on the public works project, the contractor shall obtain an affidavit signed under penalty of perjury from the subcontractor that the subcontractor has paid the specified general prevailing rate of per diem wages to his or her employees on the public works project and any amounts due pursuant to Section 1813.

(c) The Division of Labor Standards Enforcement shall notify the contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages.

Labor Code Section 1777.5

1777.5. (a) This chapter does not prevent the employment of properly registered apprentices upon public works.

(b) (1) Every apprentice employed upon public works shall be paid the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered and shall be employed only at the work of the craft or trade to which he or she is registered.

(2) Unless otherwise provided by a collective bargaining agreement, when a contractor requests the dispatch of an apprentice pursuant to this section to perform work on a public works project and requires the apprentice to fill out an application or undergo testing, training, an examination, or other preemployment process as a condition of employment, the apprentice shall be paid for the time spent on the required preemployment activity, including travel time to and from the required activity, if any, at the prevailing rate of per diem wages for apprentices in the trade to which he or she is registered. Unless otherwise provided by a collective bargaining agreement, a contractor is not required to compensate an apprentice for the time spent on preemployment activities if the apprentice is required to take a preemployment drug or alcohol test and he or she fails to pass that test.

(c) Only apprentices, as defined in Section 3077, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprentice agreements under Chapter 4 (commencing with Section 3070) of Division 3 are eligible to be employed at the apprentice wage rate on public works. The employment and training of each apprentice shall be in accordance with either of the following:

(1) The apprenticeship standards and apprentice agreements under which he or she is training.

(2) The rules and regulations of the California Apprenticeship Council.

(d) If the contractor to whom the contract is awarded by the state or any political subdivision, in performing any of the work under the contract, employs workers in any apprenticeable craft or trade, the contractor shall employ apprentices in at least the ratio set forth in this section and may apply to any apprenticeship program in the craft or trade that can provide apprentices to the site of the public work for a certificate approving the

contractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the contractor, shall arrange for the dispatch of apprentices to the contractor. A contractor covered by an apprenticeship program's standards shall not be required to submit any additional application in order to include additional public works contracts under that program. "Apprenticeable craft or trade," as used in this section, means a craft or trade determined as an apprenticeable occupation in accordance with rules and regulations prescribed by the California Apprenticeship Council. As used in this section, "contractor" includes any subcontractor under a contractor who performs any public works not excluded by subdivision (o).

(e) Before commencing work on a contract for public works, every contractor shall submit contract award information to an applicable apprenticeship program that can supply apprentices to the site of the public work. The information submitted shall include an estimate of journeyman hours to be performed under the contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the awarding body, if requested by the awarding body. Within 60 days after concluding work on the contract, each contractor and subcontractor shall submit to the awarding body, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the contract. The information under this subdivision shall be public. The apprenticeship programs shall retain this information for 12 months.

(f) The apprenticeship program supplying apprentices to the area of the site of the public work shall ensure equal employment and affirmative action in apprenticeship for women and minorities.

(g) The ratio of work performed by apprentices to journeymen employed in a particular craft or trade on the public work may be no higher than the ratio stipulated in the apprenticeship standards under which the apprenticeship program operates if the contractor agrees to be bound by those standards. However, except as otherwise provided in this section, in no case shall the ratio be less than one hour of apprentice work for every five hours of journeyman work.

(h) This ratio of apprentice work to journeyman work shall apply during any day or portion of a day when any journeyman is employed at the jobsite and shall be computed on the basis of the hours worked during the day by journeymen so employed. Any work performed by a journeyman in excess of eight hours per day or 40 hours per week shall not be used to calculate the ratio. The contractor shall employ apprentices for the number of hours computed as above before the end of the contract or, in the case of a subcontractor, before the end of the subcontract. However, the contractor shall endeavor, to the greatest extent possible, to employ apprentices during the same time period that the journeymen in the same craft or trade are employed at the jobsite. When an hourly apprenticeship ratio is not feasible for a particular craft or trade, the Administrator of Apprenticeship, upon application of an apprenticeship program, may order a minimum ratio of not less than one apprentice for each five journeymen in a craft or trade classification.

(i) A contractor covered by this section who has agreed to be covered by an apprenticeship program's standards upon the issuance of the approval certificate, or who has been previously approved for an apprenticeship program in the craft or trade, shall employ the number of apprentices or the ratio of apprentices to journeymen stipulated in the applicable apprenticeship standards, but in no event less than the 1-to-5 ratio required by subdivision (g).

(j) Upon proper showing by a contractor that he or she employs apprentices in a particular craft or trade in the state on all of his or her contracts on an annual average of not less than one hour of apprentice work for every five hours of labor performed by journeymen, the Administrator of Apprenticeship may grant a certificate exempting the contractor from the 1-to-5 hourly ratio, as set forth in this section for that craft or trade.

(k) An apprenticeship program has the discretion to grant to a participating contractor or contractor association a certificate, which shall be subject to the approval of the Administrator of Apprenticeship, exempting the contractor from the 1-to-5 ratio set forth in this section when it finds that any one of the following conditions is met:

(1) Unemployment for the previous three-month period in the area exceeds an average of 15 percent.

(2) The number of apprentices in training in the area exceeds a ratio of 1 to 5.

(3) There is a showing that the apprenticeable craft or trade is replacing at least one-thirtieth of its journeymen annually through apprenticeship training, either on a statewide basis or on a local basis.

(4) Assignment of an apprentice to any work performed under a public works contract would create a condition that would jeopardize his or her life or the life, safety, or property of fellow employees or the public at large, or the specific task to which the apprentice is to be assigned is of a nature that training cannot be provided by a journeyman.

(l) If an exemption is granted pursuant to subdivision (k) to an organization that represents contractors in a specific trade from the 1-to-5 ratio on a local or statewide basis, the member contractors shall not be required to submit individual applications for approval to local joint apprenticeship committees, if they are already covered by the local apprenticeship standards.

(m) (1) A contractor to whom a contract is awarded, who, in performing any of the work under the contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the director determines is the prevailing amount of apprenticeship training contributions in the area of the public works site. A contractor may take as a credit for payments to the council any amounts paid by the contractor to an approved apprenticeship program that can supply apprentices to the site of the public works project. The contractor may add the amount of the contributions in computing his or her bid for the contract.

(2) At the conclusion of the 2002–03 fiscal year and each fiscal year thereafter, the California Apprenticeship Council shall distribute training contributions received by the council under this subdivision, less the expenses of the Department of Industrial Relations

for administering this subdivision, by making grants to approved apprenticeship programs for the purpose of training apprentices. The funds shall be distributed as follows:

(A) If there is an approved multiemployer apprenticeship program serving the same craft or trade and geographic area for which the training contributions were made to the council, a grant to that program shall be made.

(B) If there are two or more approved multiemployer apprenticeship programs serving the same craft or trade and county for which the training contributions were made to the council, the grant shall be divided among those programs based on the number of apprentices from that county registered in each program.

(C) All training contributions not distributed under subparagraphs (A) and (B) shall be used to defray the future expenses of the Department of Industrial Relations for the administration and enforcement of apprenticeship standards and requirements under this code.

(3) All training contributions received pursuant to this subdivision shall be deposited in the Apprenticeship Training Contribution Fund, which is hereby created in the State Treasury. Upon appropriation by the Legislature, all moneys in the Apprenticeship Training Contribution Fund shall be used for the purpose of carrying out this subdivision and to pay the expenses of the Department of Industrial Relations.

(n) The body awarding the contract shall cause to be inserted in the contract stipulations to effectuate this section. The stipulations shall fix the responsibility of compliance with this section for all apprenticeable occupations with the prime contractor.

(o) This section does not apply to contracts of general contractors or to contracts of specialty contractors not bidding for work through a general or prime contractor when the contracts of general contractors or those specialty contractors involve less than thirty thousand dollars ($30,000).

(p) An awarding body that implements an approved labor compliance program in accordance with subdivision (b) of Section 1771.5 may, with the approval of the director, assist in the enforcement of this section under the terms and conditions prescribed by the director.

Labor Code Section 1813

1813. The contractor or subcontractor shall, as a penalty to the state or political subdivision on whose behalf the contract is made or awarded, forfeit twenty-five dollars ($25) for each worker employed in the execution of the contract by the respective contractor or subcontractor for each calendar day during which the worker is required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of this article. In awarding any contract for public work, the awarding body shall cause to be inserted in the contract a stipulation to this effect. The awarding body shall take cognizance of all violations of this article committed in the course of the execution of the contract, and shall report them to the Division of Labor Standards Enforcement.

Labor Code Section 1815

1815. Notwithstanding the provisions of Sections 1810 to 1814, inclusive, of this code, and notwithstanding any stipulation inserted in any contract pursuant to the requirements of said sections, work performed by employees of contractors in excess of 8 hours per day, and 40 hours during any one week, shall be permitted upon public work upon compensation for all hours worked in excess of 8 hours per day at not less than 11/2 times the basic rate of pay.

1.6 Excavation Safety

Non-Profit Entity shall comply with Labor Code Section 6705 while excavating. For an excavation five feet or more in depth, submit shop drawings for a protective system.

The drawings must show the design and details for providing worker protection from caving ground during excavation.

Shop drawings of protective systems for which the Construction Safety Orders issued by Cal/OSHA require design by a registered professional engineer must be sealed and signed by an engineer who is registered as a civil engineer in the State.

2. PUBLIC CONTRACT CODE REQUIREMENTS

2.1 Ineligible Contractors

Non-Profit Entity shall not enter into or permit entering into any Contract with a Contractor who is ineligible to perform work on the Project pursuant to Section 1777.1 or 1777.7 of the Labor Code.

2.2 Assignment of Causes of Action

Non-Profit Entity's attention is directed to the following requirements in Public Contract Code Section 7103.5:

> (b) In entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the contractor, without further acknowledgment by the parties.

2.3 [RESERVED]

2.4 Specifications by Brand or Trade Names

Non-Profit Entity's attention is directed to the following requirements in Public Contract Code Section 3400:

> (b) No agency of the state, nor any political subdivision, municipal corporation, or district, nor any public officer or person charged with the letting of contracts for the construction, alteration, or repair of public works, shall draft or cause to be drafted specifications for bids, in connection with the construction, alteration, or repair of public works, (1) in a manner that limits the bidding, directly or indirectly, to any one specific concern, or (2) calling for a designated material, product, thing, or service by specific brand or trade name unless the specification is followed by the words "or equal" so that bidders may furnish any equal material, product, thing, or service. In applying this section, the specifying agency shall, if aware of an equal product manufactured in this state, name that product in the specification. Specifications shall provide a period of time prior to or after, or prior to and after, the award of the contract for submission of data substantiating a request for a substitution of "an equal" item. If no time period is specified, data may be submitted any time within 35 days after the award of the contract.
>
> (c) Subdivision (b) is not applicable if the awarding authority, or its designee, makes a finding that is described in the invitation for bids or request for proposals that a particular material, product, thing, or service is designated by specific brand or trade name for any of the following purposes:
>
> (1) In order that a field test or experiment may be made to determine the product's suitability for future use.
>
> (2) In order to match other products in use on a particular public improvement either completed or in the course of completion.
>
> (3) In order to obtain a necessary item that is only available from one source.
>
> (4)(A) In order to respond to an emergency declared by a local agency, but only if the declaration is approved by a four-fifths vote of the governing board of the local agency issuing the invitation for bid or request for proposals.
>
> (B) In order to respond to an emergency declared by the state, a state agency, or political subdivision of the state, but only if the facts setting forth the reasons for the finding of the emergency are contained in the public records of the authority issuing the invitation for bid or request for proposals.

3. GOVERNMENT CODE REQUIREMENTS

3.1 Removal, Relocation or Protection of Existing Utilities

Non-Profit Entity acknowledges and agrees that the provisions of Article 14 (Compensation and Other Relief for Delay Events) of this Agreement satisfy City's obligations pursuant to Government Code Section 4215. Non-Profit Entity agrees that to the extent that Government

Code Section 4215 may be construed to the contrary, Non-Profit Entity hereby waives the benefit of such statute.

3.2 Nondiscrimination and Compliance Employment Programs

Non-Profit Entity shall comply with, and shall require Contractors to comply with, the provisions of:

(b) the Fair Employment and Housing Act (Government Code section 12900 et seq.), and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, section 7285 et seq.); and

(c) the Fair Employment and Housing Commission regulations implementing Government Code section 12990 (a-f) set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations,

which are incorporated into, and made a part of this Agreement as if set forth in full. Non-Profit Entity shall require each Contractor to include the compliance requirements under this Section 3.2 (Nondiscrimination and Compliance Employment Programs) in its Contract, and give written Notice of such Contractor's obligations under this Section 3.2 (Nondiscrimination and Compliance Employment Programs) to labor organizations with which it has a collective bargaining or other agreement, as appropriate.

4. BUSINESS AND PROFESSIONS CODE

Non-Profit Entity's attention is directed to the following requirements in Business and Professions Code Sections 7030(a) and 7108.5(a) through (d):

7030. (a) Except for contractors writing home improvement contracts pursuant to Section 7151.2 and contractors writing service and repair contracts pursuant to Section 7159.10, every person licensed pursuant to this chapter shall include the following statement in at least 10-point type on all written contracts with respect to which the person is a prime contractor:

> "Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, CA 95826."

7108.5 (a) A prime contractor or subcontractor shall pay to any subcontractor, not later than seven days after receipt of each progress payment, unless otherwise agreed to in writing, the respective amounts allowed the contractor on account of the work performed by the subcontractors, to the extent of each subcontractor's interest therein. In the event that there is a good faith dispute over all or any portion of the amount due on a progress payment from the prime contractor or subcontractor to a subcontractor, the prime contractor or subcontractor may withhold no more than 150 percent of the disputed amount.

(b) Any violation of this section shall constitute a cause for disciplinary action and shall subject the licensee to a penalty, payable to the subcontractor, of 2 percent of the amount due per month for every month that payment is not made.

(c) In any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to his or her attorney's fees and costs.

(d) The sanctions authorized under this section shall be separate from, and in addition to, all other remedies, either civil, administrative, or criminal.

EXHIBIT 16C

CITY REQUIREMENTS

Non-Profit Entity has reviewed, understands, and is ready, willing, and able to comply with the terms and conditions of this Exhibit 16C (City Requirements), which summarizes certain City requirements as of the Effective Date, each of which is fully incorporated by reference. Non-Profit Entity acknowledges that City requirements in effect when any Contract Documents are executed will be incorporated into the Contract Documents, as applicable, and will apply to all Contractors, Subcontractors, and any other NPE- Related Entities, as applicable. City requirements of general applicability will apply to the Project even if not summarized below.

The following summary is for Non-Profit Entity's convenience only; Non-Profit Entity is obligated to become familiar with all applicable requirements and to comply with them fully as they are amended from time to time. City ordinances are currently available on the web at www.sfgov.org and at www.amlegal.com/codes/client/san-francisco_ca. References to specific laws in this Exhibit 16C (City Requirements) refer to the San Francisco Municipal Code unless specified otherwise. Capitalized terms used in this Exhibit 16C (City Requirements) and not defined in this Agreement will have the meanings assigned to them in the applicable Section of the San Francisco Municipal Code.

1. Nondiscrimination in City Contracts and Benefits Ordinance.

(a) Non-Discrimination in Contracts. Non-Profit Entity shall comply with the provisions of Chapters 12B and 12C of the Administrative Code, which are incorporated into this Agreement by this reference. Non-Profit Entity shall incorporate by reference in all Contractor Documents the provisions of Sections 12B.2(a), 12B.2(c)-(k), and 12C.3 of the Administrative Code and shall require all PPC-Related Entities to comply with such provisions. Non-Profit Entity is subject to the enforcement and penalty provisions in Chapters 12B and 12C.

(b) Non-Discrimination in the Provision of Employee Benefits. Non-Profit Entity does not as of Effective Date, and will not during the Term, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for City elsewhere in the United States, discriminate in the provision of employee benefits between employees with domestic partners and employees with spouses and/or between the domestic partners and spouses of such employees, subject to the conditions set forth in San Francisco Administrative Code Section 12B.2.

2. Local Hire.

(a) Summary. This Section 1.2 incorporates applicable requirements of the San Francisco Local Hiring Policy for Construction ("Policy") as set forth in Section 6.22(g) and Chapter 82 of the San Francisco Administrative Code. Non-Profit Entity agrees that (i) Non-Profit Entity shall comply with all applicable requirements of the Policy; (ii) the provisions of the Policy are reasonable and achievable by Non-Profit Entity and NPE-Related Entities; and (iii) they have had a full and fair opportunity to review and understand the terms of the Policy. Non-Profit Entity shall incorporate the requirements of the Policy in all Bid Packages1 procured by Non-Profit Entity in accordance with the Contract Documents.

The Office of Economic and Workforce Development (OEWD) is responsible for administering the Policy. For more information on the Policy and its implementation, please visit the OEWD website at: www.oewd.org.

Meeting the local hiring requirements of the Policy as set forth in this document will satisfy Non-Profit Entity's obligations under the City's First Source Hiring Program (San Francisco Administrative Code Chapter 83).

(b) Definitions. For the purposes of this Section only, the following definitions shall apply:

(i) "Apprentice" means any worker who is indentured in a construction apprenticeship program that maintains current registration with the State of California's Division of Apprenticeship Standards.

(ii) "Area Median Income (AMI)" means unadjusted median income levels derived from the Department of Housing and Urban Development ("HUD") on an annual basis for the San Francisco area, adjusted solely for household size, but not high housing cost area.

(iii) "Covered Project" means a public work or improvement or part thereof with estimated cost in excess of the Threshold Amount as set forth in Section 6.1 of the San Francisco Administrative Code.

(iv) "Non-covered Project" means any construction projects not covered by the San Francisco Local Hiring Policy.

(v) "Disadvantaged Worker" means a local resident, who (i) resides in a census tract within the City with a rate of unemployment in excess of 150% of the City unemployment rate; or (ii) at the time of commencing work on a covered project has a household income of less than 80% of the AMI, or (iii) faces or has multiple barriers to employment as set forth in Section 82.3 of the Administrative Code.

(vi) "Local Resident" means an individual who is domiciled, as defined by Section 349(b) of the California Election Code, within the City at least seven (7) days prior to commencing work on the project. For projects outside the jurisdictional boundaries of the City, "local resident" also applies to residents within the San Francisco Public Utilities Commission service territory, except where a reciprocity agreement exists with another local agency, in which case the reciprocity agreement controls.

(vii) "Project Work Hours" means the total work hours worked on a construction contract by all apprentices and journey-level workers, whether those workers are employed by the Contractor or any Subcontractor.

(viii) "Job Notification" means the written notice of any Hiring Opportunities from Contractor to CityBuild. Contractor shall provide Job Notifications to CityBuild with a minimum of three (3) business days' notice.

(ix) "Targeted Worker" means any Local Resident or Disadvantaged Worker

(c) Local Hiring Requirements.

(i) Total Project Work Hours by Trade: For all Covered Projects, the mandatory participation level in terms of Project Work Hours within each trade to be performed by Local Residents is 30%, with a goal of no less than 15% of Project Work Hours within each trade to be performed by Disadvantaged Workers.

(ii) Apprentices: For all Covered Projects, at least 50% of the Project Work Hours performed by apprentices within each trade shall be performed by Local Residents, with a goal of no less than 25% of Project Work Hours performed by apprentices within each trade to be performed by Disadvantaged Workers.

(iii) Out-of-State Workers: For all Covered Projects, Project Work Hours performed by residents of states other than California will not be considered in calculation of the number of Project Work Hours to which the local hiring requirements apply. Contractors and Subcontractors shall report to San Francisco Public Works and OEWD the number of Project Work Hours performed by residents of states other than California.

(iv) Pre-construction or other Local Hire Meeting: Prior to commencement of construction on Covered Projects, Contractor and its Subcontractors identified in the Local Hiring Forms as contributing toward the mandatory local hiring requirement shall attend a preconstruction or other Local Hire meeting(s) convened by awarding department or OEWD staff. Representatives from Contractor and the Subcontractor(s) who attend the pre-construction or other Local Hire meeting must have hiring authority.

(v) The Policy does not limit Contractor's or its Subcontractors' ability to assess qualifications of prospective workers, and to make final hiring and retention decisions. No provision of the Policy shall be interpreted so as to require a Contractor or Subcontractor to employ a worker not qualified for the position in question, or to employ any particular worker.

(d) Citybuild Workforce Development Program; Employment Networking Services. OEWD administers the CityBuild Program. CityBuild is a resource for Contractor and Subcontractors to use in meeting local hiring requirements under the Policy. CityBuild has two main goals:

(i) Assist with local hiring requirements under the Policy by connecting Contractor and Subcontractors with qualified journey-level, apprentice, and pre-apprentice local residents.

(ii) Promote training and employment opportunities for disadvantaged workers of all ethnic backgrounds and genders in the construction work force

Where Contractor's or its Subcontractors' prefered or preexisting hiring or staffing procedures for a Covered Project do not enable Contractor to satisfy the local hiring requirements of the Policy, the Contractor or Subcontractor shall use other procedures to identify and retain Targeted Workers, including the following:

(i) Requesting to connect with workers through CityBuild, with qualifications described in the request limited to skills directly related to performance of job duties.

(ii) Considering Targeted Workers networked through CityBuild within three business days of the request and who meet the qualifications described in the request. Such consideration may include in-person interviews. All workers networked through CityBuild will qualify as Disadvantaged Workers under the Policy. Neither Contractor nor its Subcontractors are required to make an independent determination of whether any worker is "disadvantaged" as defined in the Policy.

(e) Conditional Waiver from Local Hiring Requirements. Contractor or the Subcontractor may use one or more of the following pipeline and retention compliance mechanisms to receive a conditional waiver from the local hiring requirements on a project-specific basis. All requests for conditional waivers must be submitted to OEWD for approval.

(i) Specialized Trades: OEWD has published a list of trades designated as "Specialized Trades" for which the local hiring requirements of the Policy will not apply. The list is available on the OEWD website. Contractor and its Subcontractors shall report to OEWD the project work hours utilized in each designated Specialized Trade and in each OEWD-approved project-specific Specialized Trade

(ii) Credit for Hiring on Non-Covered Projects: Contractor and its Subcontractors may accumulate credit hours for hiring Targeted Workers on Non-Covered Projects in the nine-county San Francisco Bay Area and apply those credit hours to contracts for Covered Projects to meet the mandatory local hiring requirement. For hours performed by Targeted Workers on Non-Covered Projects, the hours shall be credited toward the local hiring requirement for this Contract provided that:

A. the Targeted Workers are paid the prevailing wages for work on the Non-Covered Projects; and

B. for Non-Covered Projects located in the City, the number of hours to be credited for the Non-Covered Project exceed one-half of the number of hours that would be required if the project were a Covered Project.

(iii) Sponsoring Apprentices: Contractor or a Subcontractor may agree to sponsor an OEWD-specified number of new apprentices in trades in which noncompliance is likely and retaining those apprentices for the period of Contractor's or a Subcontractor's work on the project. OEWD will verify with the California Department of Industrial Relations that the new apprentices are registered and active apprentices.

(iv) Direct Entry Agreements: OEWD is authorized to negotiate and enter into direct entry agreements with apprenticeship programs that are registered with the California Department of Industrial Relations' Division of Apprenticeship Standards. Contractor may avoid assessment of penalties for non-compliance with the Policy by Contractor or Subcontractor hiring and retaining apprentices who are enrolled through such direct entry agreements. Such exception from assessments of penalties is subject to review and approval by OEWD.

(f) Local Hiring Forms. Utilizing the City's online Project Reporting System ("PRS"), Contractors shall submit the following forms, as applicable, to the San Francisco Public Works and OEWD within ten (10) calendar days of notice of Award:

(i) Form 1: Local Hiring Workforce Projection. The City will not issue Notice to Proceed (NTP) until Contractor completes and submits a Local Hiring Workforce Projection.

(ii) Form 2: Local Hiring Plan. For Covered Projects estimated to cost more than $1,000,000, Contractor shall prepare and submit to Contracting City Agency and OEWD for approval a Local Hiring Plan for the project using OEWD Form 2. The OEWDapproved Local Hiring Plan will be incorporated into this Contract as a Contract Document, and will serve as the basis for determining Contractor's and its Subcontractors' compliance with local hiring requirements.

A. The City will not issue NTP until Contractor submits the Local Hiring Plan. Contractor shall be fully responsible for any delays to NTP and associated damages incurred by the City caused by Contractor's failure to timely submit a Local Hiring Plan.

B. The Local Hiring Plan must be reviewed and approved in writing by OEWD before any Application for Payment can be approved and progress payment paid to Contractor.

C. Upon commencement of work, Contractor and its Subcontractors may submit Job Notifications to CityBuild to connect with local trades workers.

(iii) Form 4: Conditional Waivers. To be completed by Contractor in the event that Contractor or a Subcontractor believes the local hiring requirements cannot be met. Refer to Articles 1.4 and 1.5 for more information regarding conditional waivers

(g) Enforcement, Record Keeping, Noncompliance and Penalties.

(i) Subcontractor Compliance: Contractor shall ensure that Subcontractors of all tiers comply with applicable requirements of the Policy. Refer to Administrative Code Section 82.7(d).

(ii) Reporting: Contractor shall submit certified payrolls to the City electronically using the Project Reporting System. OEWD and San

Francisco Public Works will monitor compliance with the Policy electronically.

(iii) Recordkeeping: Contractor and each Subcontractor shall keep, or cause to be kept, for a period of four years from the date of Substantial Completion of project work, certified payroll and basic records, including time cards, tax forms, and superintendent and foreman daily logs, for all workers within each trade performing work on the Project.

A. Such records shall include the name, address and social security number of each worker who worked on the covered project, his or her classification, a general description of the work each worker performed each day, the apprentice or journey-level status of each worker, daily and weekly number of hours worked, the self-identified race, gender, and ethnicity of each worker, whether or not the worker was a local resident, and the referral source or method through which the contractor or subcontractor hired or retained that worker for work on the covered project (e.g., core workforce, name call, union hiring hall, City-designated referral source, or recruitment or hiring method).

B. Contractor and Subcontractors may verify that a worker is a Local Resident by following OEWD's domicile policy.

C. All records described in this subsection shall at all times be open to inspection and examination by the duly authorized officers and agents of the City, including representatives of the awarding department and the OEWD.

(iv) Monitoring: From time to time and in its sole discretion, OEWD and/or the awarding department may monitor and investigate compliance of Contractor and Subcontractors working on the Project with requirements of this Policy. Contractor shall allow representatives of OEWD and the awarding department, in the performance of their duties, to engage in random inspections of the Site. Contractor and all Subcontractors shall also allow representatives of OEWD and the awarding department to have access to employees of Contractor and Subcontractors and the records required to be maintained under the Policy.

(v) Noncompliance and Penalties: Failure of Contractor and/or its Subcontractors to comply with the requirements of the Policy and the obligations set forth in the Local Hiring Plan may subject Contractor to the consequences of noncompliance specified in Section 82.8(f) of the Administrative Code, including but not limited to the penalties prescribed in Section 82.8(f)(2). The assessment of penalties for noncompliance shall not preclude the City from exercising any other rights or remedies to which it is entitled. Refer to Administrative Code Section 82.8(f)(4) for a description of the recourse procedure applicable to penalty assessments under the Policy.

3. First Source Hiring Program for Design-Build Services.

(a) Summary. This Section incorporates the requirements of the First Source Hiring Program pursuant to San Francisco Administrative Code, Chapter 83. Non-Profit Entity agrees to participate and comply with the provisions of the First Source Hiring Program for all D&C Work. Non-Profit Entity shall incorporate provisions of the First Source Hiring Program into any Joint Venture Partnership and shall require NPE-Related Entities to do the same.

The Office of Economic and Workforce Development ("OEWD") is Non-Profit Entity's main contact for the First Source hiring Program.

(b) Definitions. For the purposes of this Section only, the following definitions shall apply:

(i) Entry Level Position: Any non-managerial position that requires either: (i) no education above a high school diploma or certified equivalency; or (ii) less than two years training or specific preparation; and (iii) shall include temporary positions and paid internships.

(ii) Referral: An economically disadvantaged worker, identified by the First Source Hiring Program, that has either: (i) graduated from OEWD's Entry Level Professional Services Training Program; or (ii) has the appropriate training, employment background, and skill set for any new and available Entry Level Position specified by Contractor

(c) First Source Hiring Goals.Over the life of the Contract:

(i) Contractor shall make good faith efforts to hire a minimum number of Referrals from the First Source Hiring Program to fulfill all new and available Entry Level Positions. Contractor may decline to hire a Referral if Contractor considers the Referral in good faith and deems the Referral is not qualified. The final decision to hire a Referral shall be made by Contractor. The number of Referrals to be hired is based on the Design Fee Schedule below:

Design-Build Services Fee Schedule	Number of Referrals to be Hired (over the life of the Contract)
$0 – $499,999	0
$500,000 – $899,999	1
$900,000 – $1,999,999	2
$2,000,000 – $4,999,999	3

$5,000,000 – $7,999,999	4
$8,000,000 – $10,999,999	5
$11,000,000 – $13,999,999	6
(≥ $14 million, for each additional $3 million in Design-Build Services Fees, add one additional Referral)	

(ii) Contractor shall hire a Referral on a full-time basis for at least 12 months or on part-time basis for 24 months.

(iii) Referrals must be obtained through the First Source Hiring Program and Contractor must consider all Referrals fairly and equally and comply with the non-discrimination provisions pursuant to local, state, and federal laws.

(d) Document Requirements. Contractor shall complete, sign, and submit a First Source Hiring Agreement within 30 days of notice of award of the Contract.

(e) Procedures.

(i) Within 30 days of Contract award, Contractor shall email the First Source Hiring Program and schedule to meet with staff from the First Source Hiring Program. At the meeting, Contractor will provide information on new and available Entry Level Positions, number of Referrals to be hired, job description, start date, and rate of pay. If Contractor cannot quantify the numbers of Referrals to be hired, Contractor must still meet with the First Source Hiring Program and present a workforce plan of good faith efforts towards the First Source Hiring goals.

(ii) Contractor is required to notify the First Source Hiring Program of all new and available Entry Level Positions.

(iii) Contractor shall designate a representative to monitor all employment related activity and be the main contact for the First Source Hiring Program.

(iv) Contractor shall maintain documentation and records supporting good faith efforts toward the First Source Hiring Program.

(f) Retention for Hired Referrals. Contractor must provide constructive feedback for all Referrals hired through the First Source Hiring Program. Contractor also agrees to provide an update on the Referral's employment status within 30, 60, and 90 days of the

Referral's start date. Contractor will provide timely notification to the First Source Hiring Program on the termination of any hired Referral.

(g) Noncompliance. Failure to meet the criteria of the First Source Hiring Program does not impute bad faith but rather will trigger a review for compliance. If the City deems Contractor is noncompliant and acted in bad faith towards the First Source Hiring Program, then the City may withhold progress payments and assess liquidated damages as defined in San Francisco Administrative Code Chapter 83.**Requiring Health Benefits for Covered Employees**. All undefined, initially-capitalized terms used in this Section 1.2 (Requiring Health Benefits for Covered Employees) shall have the meanings given to them in Administrative Code Chapter 12Q (the "**HCAO**"). If the HCAO applies to this Agreement, Non-Profit Entity shall comply with the requirements of the HCAO. For each Covered Employee, Non-Profit Entity shall provide the appropriate health benefit set forth in Section 12Q.3 of the HCAO. If Non-Profit Entity chooses to offer the health plan option, such health plan shall meet the minimum standards set forth by the San Francisco Health Commission. Information about and the text of the HCAO, as well as the Health Commission's minimum standards, is available on the web at http://sfgov.org/olse/hcao. Non-Profit Entity is subject to the enforcement and penalty provisions in the HCAO. Any Contract entered into by Non-Profit Entity shall require any PPC-Related Entity with 20 or more employees to comply with the requirements of the HCAO and shall contain contractual obligations substantially the same as those set forth in this Section 1.2 (Requiring Health Benefits for Covered Employees).

4. Minimum Compensation Ordinance. If San Francisco Administrative Code Chapter 12P applies to this Agreement, Non-Profit Entity shall pay covered employees no less than the minimum compensation required by San Francisco Administrative Code Chapter 12P ("**Chapter 12P**"), including a minimum hourly gross compensation, compensated time off, and uncompensated time off. Non-Profit Entity is subject to the enforcement and penalty provisions in Chapter 12P. Information about and the text of the Chapter 12P is available on the web at http://sfgov.org/olse/mco. Non-Profit Entity is required to comply with all of the applicable provisions of Chapter 12P, irrespective of the listing of obligations in this Section 1.3 (Minimum Compensation Ordinance). By signing and executing this Agreement, Non-Profit Entity certifies that it complies with Chapter 12P.

5. Prevailing Rate of Wages and Working Conditions.

(a) Covered Services. Non-Profit Entity agrees it will pay, and require the PPC-Related Entities to pay, the Prevailing Rate of Wages for any Work performed by Non-Profit Entity or the PPC-Related Entities ("**Covered Services**"), including any trade work for the Project performed by or for Non-Profit Entity during the Term. The provisions of Section 6.22(e) and 21C of the San Francisco Administrative Code are incorporated as provisions of this Agreement as if fully set forth herein and will apply to any Covered Services performed by Non-Profit Entity and the PPC-Related Entities.

(b) Determining the Prevailing Rate of Wages. The latest Prevailing Rate of Wages for private employment on public contracts as determined by the San Francisco Board of Supervisors and the Director of the California Department of Industrial Relations, as such prevailing wage rates may be changed during the Term, are hereby incorporated as provisions of this Agreement. Copies of the Prevailing Rate of Wages as fixed and determined by the Board of Supervisors are available from the Office of Labor Standards and Enforcement ("**OLSE**") and on the Internet at http://www.dir.ca.gov/DLSR/PWD and http://sfgov.org/olse/prevailing-wage. Non-Profit Entity agrees that it and the PPC-Related

Entities will pay no less than the Prevailing Rate of Wages, as fixed and determined by the Board of Supervisors, to all workers who perform Covered Services and are employed by Non-Profit Entity or the PPC-Related Entities.

(c) Subcontract Requirements. As required by Section 6.22(e)(5) of the San Francisco Administrative Code, Non-Profit Entity shall require each Contractor to insert in every Subcontract or other arrangement, which it may make for the performance of Covered Services under this Agreement, a provision that said Subcontractor shall pay to all Persons performing labor in connection with Covered Services under said Subcontract or other arrangement not less than the highest general the Prevailing Rate of Wages as fixed and determined by the Board of Supervisors for such labor or services.

(d) Posted Notices. As required by Section 1771.4 of the California Labor Code, Non-Profit Entity shall post job site notices prescribed by the California Department of Industrial Relations ("**DIR**") at all job sites where Covered Services are to be performed.

(e) Payroll Records. As required by Section 6.22(e)(6) of the San Francisco Administrative Code and Section 1776 of the California Labor Code, Non-Profit Entity shall keep or cause to be kept complete and accurate payroll records for all trade workers performing Covered Services. Such records shall include the name, address and social security number of each worker who provided Covered Services on the project, including apprentices, his or her classification, a general description of the services each worker performed each day, the rate of pay (including rates of contributions for, or costs assumed to provide fringe benefits), daily and weekly number of hours worked, deductions made and actual wages paid. Every Contractor and Subcontractor who shall undertake the performance of any part of Covered Services shall keep a like record of each person engaged in the execution of Covered Services under the Contract or Subcontract. All such records shall at all times be available for inspection of and examination by City and its authorized representatives and the DIR.

(f) Certified Payrolls. Certified payrolls shall be prepared pursuant to San Francisco Administrative Code Section 6.22(e)(6) and California Labor Code Section 1776 for the period involved for all employees, including those of Subcontractors, who performed labor in connection with Covered Services. Non-Profit Entity and each Subcontractor performing Covered Services shall submit certified payrolls to City and to the DIR electronically. Non-Profit Entity shall submit payrolls to City via the reporting system selected by City. The DIR will specify how to submit certified payrolls to it. City will provide basic training in the use of the reporting system at a scheduled training session. Non-Profit Entity, all Contractors and all Subcontractors that will perform Covered Services must attend the training session. Non-Profit Entity, Contractors, and Subcontractors shall comply with electronic certified payroll requirements (including training) at no additional cost to City.

(g) Compliance Monitoring. Covered Services to be performed under this Agreement are subject to compliance monitoring and enforcement of prevailing wage requirements by the DIR and/or the OLSE. Non-Profit Entity, Contractors and Subcontractors performing Covered Services will cooperate fully with the DIR and/or the OLSE and other City employees and agents authorized to assist in the administration and enforcement of the prevailing wage requirements, and agrees to take the specific steps and actions as required by Section 6.22(e)(7) of the San Francisco Administrative Code. Steps and actions include but are not limited to requirements that: (i) Non-Profit Entity will cooperate fully with the Labor Standards Enforcement Officer and other City employees and agents authorized to assist in the administration and enforcement of the Prevailing Wage requirements and other labor standards

imposed on Non-Profit Entity by the Charter and Chapter 6 of the San Francisco Administrative Code; (ii) Non-Profit Entity agrees that the Labor Standards Enforcement Officer and his or her designees, in the performance of their duties, shall have the right to engage in random inspections of job sites and to have access to the employees of Non-Profit Entity, employee time sheets, inspection logs, payroll records and employee paychecks; (iii) Contractors and Subcontractors shall maintain a sign-in and sign-out sheet showing which employees are present on the job site; (iv) Non-Profit Entity shall prominently post at each job-site a sign informing employees that the project is subject to the City's Prevailing Wage requirements and that these requirements are enforced by the Labor Standards Enforcement Officer; and (v) that the Labor Standards Enforcement Officer may audit such records of Non-Profit Entity as he or she reasonably deems necessary to determine compliance with the Prevailing Wage and other labor standards imposed by the Charter and this Chapter and applicable to this Agreement. Failure to comply with these requirements may result in penalties and forfeitures consistent with analogous provisions of the California Labor Code, including Section 1776(g), as amended from time to time.

(h) Remedies. Should Non-Profit Entity, Contractors or Subcontractors who shall undertake the performance of any Covered Services, fail or neglect to pay to the persons who perform Covered Services under this Agreement, Contracts or Subcontracts or other arrangement for the Covered Services, the general prevailing rate of wages as herein specified, Non-Profit Entity shall forfeit, and in the case of any Subcontractor so failing or neglecting to pay said wage, Non-Profit Entity and the Subcontractor shall jointly and severally forfeit, back wages due plus the penalties set forth in San Francisco Administrative Code Section 6.22 (e) and/or California Labor Code Section 1775. City, when certifying any payment, which may become due under the terms of this Agreement, shall deduct from the amount that would otherwise be due on such payment the amount of said forfeiture.

6. Prohibition on Use of Public Funds for Political Activity. In performing the Work, Non-Profit Entity shall comply with San Francisco Administrative Code Chapter 12G, which prohibits funds appropriated by City for this Agreement from being expended to participate in, support, or attempt to influence any political campaign for a candidate or for a ballot measure. Non-Profit Entity is subject to the enforcement and penalty provisions in Chapter 12G.

7. Consideration of Salary History. Non-Profit Entity shall comply with San Francisco Administrative Code Chapter 12K, the Consideration of Salary History Ordinance or "Pay Parity Act." Non-Profit Entity is prohibited from considering current or past salary of an applicant in determining whether to hire the applicant or what salary to offer the applicant to the extent that such applicant is applying for employment to be performed on this Agreement or in furtherance of this Agreement, and whose application, in whole or part, will be solicited, received, processed or considered, whether or not through an interview, in City or on City property. The ordinance also prohibits employers from (1) asking such applicants about their current or past salary or (2) disclosing a current or former employee's salary history without that employee's authorization unless the salary history is publicly available. Non-Profit Entity is subject to the enforcement and penalty provisions in Chapter 12K. Information about and the text of Chapter 12K is available on the web at https://sfgov.org/olse/consideration-salary-history. Non-Profit Entity is required to comply with all of the applicable provisions of 12K, irrespective of the listing of obligations in this Section 1.6 (Consideration of Salary History).

8. Consideration of Criminal History in Hiring and Employment Decisions.

(a) Non-Profit Entity agrees to comply fully with and be bound by all of the provisions of Chapter 12T, "City Contractor/Subcontractor Consideration of Criminal History in Hiring and Employment Decisions," of the San Francisco Administrative Code ("**Chapter 12T**"), including the remedies provided, and implementing regulations, as may be amended from time to time. The provisions of Chapter 12T are incorporated by reference and made a part of this Agreement as though fully set forth herein. The text of the Chapter 12T is available on the web at http://sfgov.org/olse/fco. Non-Profit Entity is required to comply with all of the applicable provisions of 12T, irrespective of the listing of obligations in this Section 1.7 (Consideration of Criminal History in Hiring and Employment Decisions). Capitalized terms used in this Section 1.7 (Consideration of Criminal History in Hiring and Employment Decisions.) and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 12T.

(b) The requirements of Chapter 12T shall only apply to a Non-Profit Entity's or its Agent's operations to the extent those operations are in furtherance of the performance of this Agreement, shall apply only to applicants and employees who would be or are performing work in furtherance of this Agreement, and shall apply when the physical location of the employment or prospective employment of an individual is wholly or substantially within the City of San Francisco. Chapter 12T shall not apply when the application in a particular context would conflict with federal or state law or with a requirement of a government agency implementing federal or state law.

9. Resource Efficiency Requirements. The Project will be subject to Chapter 7 of the San Francisco Environment Code. Accordingly, the Project must meet certain resource efficient requirements. Non-Profit Entity agrees that it will design the Project to comply with Chapter 7 of the San Francisco Environment Code, as may be amended from time to time, or any similar law.

10. MacBride Principles Northern Ireland. City urges companies doing business in Northern Ireland to move towards resolving employment inequities, and encourages such companies to abide by the MacBride Principles. City urges San Francisco companies to do business with corporations that abide by the MacBride Principles.

11. Notification of Limitations on Contributions. Non-Profit Entity acknowledges its obligations under Section 1.126 of the San Francisco Campaign and Governmental Conduct Code, which prohibits any person who contracts with, or is seeking a contract with, any department of City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, for a grant, loan or loan guarantee, or for a development agreement, from making any campaign contribution to (i) a City elected official if the contract must be approved by that official, a board on which that official serves, or the board of a state agency on which an appointee of that official serves, (ii) a candidate for that City elective office, or (iii) a committee controlled by such elected official or a candidate for that office, at any time from the submission of a proposal for the contract until the later of either the termination of negotiations for such contract or twelve months after the date City approves the contract. The prohibition on contributions applies to (a) each prospective party to the contract, (b) each member of the contractor's board of directors, the contractor's chairperson, chief executive officer, chief financial officer and chief operating officer, (c) any person with an ownership interest of more than ten percent (10%) in the contractor, (d) any Subcontractor listed in the bid or contract, and (e) any committee that is sponsored or controlled by the contractor. Non-Profit Entity certifies that it has informed each such person of the limitation on contributions imposed by Section 1.126 by the time it submitted the Implementation Proposal, and has provided the names of the persons required to be informed to City.

12. Sunshine Ordinance. Non-Profit Entity acknowledges that the Contract Documents and all records related to its formation, Non-Profit Entity's performance of Work, and City's payment are subject to the California Public Records Act, (California Government Code § 6250 et. seq.), and the San Francisco Sunshine Ordinance, (San Francisco Administrative Code Chapter 67). Such records are subject to public inspection and copying unless exempt from disclosure under federal, state or local law.

13. Conflicts of Interest. Non-Profit Entity acknowledges that it is familiar with the provisions of San Francisco Charter, Article III, Chapter 2, Section 15.103 of the City's Campaign and Governmental Conduct Code, and California Government Code Sections 87100 *et seq*. and Sections 1090 *et seq*., certifies that it does not know of any facts that would constitute a violation of these provisions, and agrees that if Non-Profit Entity becomes aware of any such fact during the Term, Non-Profit Entity will provide Notice to City immediately.

14. Certification of Funds. This Agreement is subject to the fiscal provisions of the City's Charter and the budget decisions of its Mayor and Board of Supervisors, each acting in its sole discretion. No funds will be available hereunder until prior written authorization certified by the City's Controller. The City's Controller cannot authorize payments unless funds have been certified as available in the budget or in a supplemental appropriation. City's obligations hereunder shall never exceed the amount certified by the City's Controller for the purpose and period stated in such certification. City, its employees and officers are not authorized to offer or promise any additional funding without City's Controller certification of such additional funding. Without such lawful approval and certification, City shall not be required to provide such additional funding.

15. Art Commission Design Review; Art Enrichment Allocation. The Facility will be subject to the requirements of San Francisco Charter Section 5.103 and Administrative Code Section 3.19. Non-Profit Entity must work with the San Francisco Arts Commission, in consultation with the City, to design and build the Facility in compliance with those requirements.

16. Tropical Hardwoods and Virgin Redwood Ban. City urges companies not to import, purchase, obtain, or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood, or virgin redwood wood product, except as expressly permitted by the application of San Francisco Environment Code sections 802(b) and 803(b). Non-Profit Entity will not, except as permitted by the application of sections 802(b) and 803(b), use or incorporate any tropical hardwood, tropical hardwood wood product, virgin redwood, or virgin redwood wood product in the performance of this Agreement.

17. City Business and Tax Regulations Code. Non-Profit Entity acknowledges that under Section 6.10-2 of the San Francisco Business and Tax Regulations Code, the City Treasurer and Tax Collector may require the withholding of payments to any vendor that is delinquent in the payment of any amounts that the vendor is required to pay the City under the San Francisco Business and Tax Regulations Code. If, under that authority, any payment City is required to make to Non-Profit Entity under this Agreement is withheld, then City will not be in breach or default under this Agreement, and the Treasurer and Tax Collector will authorize release of any payments withheld under this paragraph to Non-Profit Entity, without interest, late fees, penalties, or other charges, upon Non-Profit Entity coming back into compliance with its San Francisco Business and Tax Regulations Code obligations.

18. Contracting Requirements. The following City requirements are incorporated into this Agreement and apply to the Non-Profit Entity, Contractors and Subcontractors, together with any other applicable City contract requirements that are in effect on the Effective Date.

(a) Tobacco and Alcohol Products Advertising Ban. Non-Profit Entity acknowledges and agrees that no advertising of cigarettes, tobacco products, or alcoholic beverages is allowed on any real property owned by or under the control of City. This prohibition includes the placement of the name of a company producing, selling or distributing cigarettes, tobacco products, or alcoholic beverages or the name of any cigarette, tobacco product, or alcoholic beverages in any promotion of any event or product. This prohibition does not apply to any advertisement sponsored by a state, local, nonprofit, or other entity designed to: (a) communicate the health hazards of cigarettes and tobacco products or alcoholic beverages; (b) encourage people not to smoke or to stop smoking, or not to drink alcohol or to stop drinking alcohol; or (c) provide or publicize drug or alcohol treatment or rehabilitation services.

(b) Alcohol and Drug-Free Workplace. City reserves the right to deny access to, or require Non-Profit Entity to remove any PPC-Related Entities from City facilities if City has reasonable grounds to believe that person has engaged in alcohol abuse or illegal drug activity which in any way impairs City's ability to maintain safe work facilities or to protect the health and well-being of City employees and the general public. City shall have the right of final approval for the entry or re-entry of any that person previously denied access to, or removed from, City facilities. Illegal drug activity means possessing, furnishing, selling, offering, purchasing, using or being under the influence of illegal drugs or other controlled substances for which the person lacks a valid prescription. Alcohol abuse means possessing, furnishing, selling, offering, or using alcoholic beverages, or being under the influence of alcohol.

(c) Drug-Free Workplace. Non-Profit Entity acknowledges that pursuant to the Federal Drug-Free Workplace Act of 1988 (41 U.S.C. §§ 8101 et seq.), the unlawful manufacture, distribution, possession or use of a controlled substance is prohibited on City property.

(d) Food Service Waste Reduction Ordinance. Non-Profit Entity agrees to comply fully with and be bound by the Food Service Waste Reduction Ordinance (San Francisco Environment Code Chapter 16), including but not limited to the remedies for noncompliance provided therein.

(e) Sugar Sweetened Beverages and Packaged Water. Non-Profit Entity agrees that it will not sell, provide, or otherwise distribute Sugar-Sweetened Beverages, as defined by San Francisco Administrative Code Chapter 101, as part of its performance of this Agreement. Non-Profit Entity agrees that it shall not sell, provide, or otherwise distribute Packaged Water, as defined by San Francisco Environment Code Chapter 24, as part of its performance of this Agreement.

19. Preservative Treated Wood Products. Non-Profit Entity shall comply with the provisions of San Francisco Environment Code Chapter 13, which requires that anyone purchasing preservative-treated wood products on behalf of the City, shall only purchase such products from the list of alternatives adopted by the Department of the Environment pursuant to Section 1302 of Chapter 13, unless otherwise granted an exemption by the terms of that Chapter.

20. SFMTA Surveillance Technology Policy. Non-Profit Entity must comply with the SFMTA's Surveillance Technology Policy, adopted under San Francisco Administrative Code Chapter 19B. A copy of the SFMTA's Surveillance Technology Policy is attached as Exhibit 16D (SFMTA's Surveillance Technology Policy).

21. SFMTA Training Programs.

(a) Large Vehicle Driver Safety Training. Non-Profit Entity agrees that, before any NPE-Related Entities drive large vehicles within the City of San Francisco, those NPE-Related Entities will successfully complete either (a) the SFMTA's Large Vehicle Urban Driving Safety training program or (b) a training program that meets the SFMTA's approved standards for large vehicle urban driving safety. The SFMTA's approved standards for large vehicle urban driving safety will be posted and made available for download at www.SFMTA.com/largevehicletrainingstandards. This requirement does not apply to drivers providing delivery services who are not NPE-Related Entities. For purposes of this section, "large vehicle" means any single vehicle or combination of vehicle and trailer with an unladen weight of 10,000 lbs or more, or a van designed to carry 10 or more people.

By entering into this Agreement, Non-Profit Entity agrees that in the event the Non-Profit Entity fails to comply with the Large Vehicle Driver Safety Training Requirements, the City will suffer actual damages that will be impractical or extremely difficult to determine; further, Non-Profit Entity agrees that the sum of up to $1,000 per employee or NPE-Related Entity who is permitted to drive a large vehicle in violation of these requirements is not a penalty, but is a reasonable estimate of the loss that City will incur based on the Non-Profit Entity's failure to comply with this requirement, established in light of the circumstances existing at the time this contract was awarded. City may deduct a sum representing the liquidated damages from any money due to Non-Profit Entity. Such deductions shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Non-Profit Entity's failure to comply.

(b) CITYBUILD Referral. In the employment of CITYBUILD referrals who are or who become registered apprentices, Non-Profit Entity must maintain the proper ratio of apprentices to journeymen for each trade on the job site. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, Non-Profit Entity must employ such apprentices and trainees during the training period, and Non-Profit Entity must commit to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Unless otherwise permitted by law, trainees must be trained pursuant to training programs approved by the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or the California Department of Industrial Relations, Division of Apprenticeship Standards. Courses offered by City College of San Francisco and other community college districts or comparable institutions will also be considered.

(c) Design Professional Services. Non-Profit Entity shall require its Design Professional(s) to be responsible without limitation for assisting the City in training staff and developing systems and procedures for operation and maintenance and record keeping for equipment or system designed by the Design Professional for incorporation into the Project.

(d) SFMTA Safety Program. Non-Profit Entity shall be familiar with and shall ensure that NPE-Related Entities are trained in applicable SFMTA safety orders and standard operating procedures, including but not limited to the SFMTA Safety Program and the SFMTA RWP Program. Non-Profit Entity shall be familiar with and shall ensure that applicable NPE-

Related Entities have required safety certificates, including but not limited to certification of safety training provided by the SFMTA's Safety and/or Training Division. Non-Profit Entity shall hold regular "tailgate" safety sessions and other trainings to refresh applicable NPE-Related Entities' knowledge of Site safety. Where Work is to be performed within six feet of all SFMTA rail line segments, 10 feet from high voltage overhead traction power lines, including support/ span infrastructure, or in SFMTA tunnels, tunnel portals, station platforms, and vehicle yards and maintenance facilities, Non-Profit Entity shall provide a full safety briefing consistent with the SFMTA RWP program each day prior to the commencement of any Work activity.

(e) Partnering Training. In accordance with the Citywide partnering program, at least one member of the City staff team and Non-Profit Entity shall attend the City Partnering Fundamentals Training and have received a Certificate of Completion from the training session. It is recommended that the key members of the project delivery team (i.e., Non-Profit Entity project executive, project manager and superintendent, and the City project manager and construction manager) be trained. It is recommended that the prime contractor have at least two members of the team trained so that one is available on the project at all times. Training is free to participants and is offered regularly by the City. Attendance can be coordinated through the Partnering Coordinator and www.sfpartnering.com. Evidence of training (i.e. the Certificate of Completion) must be provided to the City project manager no later than 90 days after Notice of Award.

(f) Contractor Computer Software Training. Non-Profit Entity shall use the latest version of Primavera (P6) software or equivalent for all computer generated tabular reports and logic network graphics. Non-Profit Entity shall furnish schedule software and all original software instruction manuals to the city for the City's exclusive possession and use with submittal of the baseline schedule. Non-Profit Entity shall also furnish the latest schedule-comparing software, which is compatible for use with the schedule software to the City.

Non-Profit Entity shall instruct the Engineer in the use of the software and provide software support until the acceptance of contract. Within 20 working days of contract approval, Non-Profit Entity shall provide a commercial 8-hour training session for 2 City employees in the use of the software at a location acceptable to the City.

(g) Project Controls System (PCS) Training from SFMTA to Non-Profit Entity. SFMTA will provide a onetime training session of up to 2 hours to train Non-Profit Entity's designated NPE-Related Entities on SFMTA's forms and procedures, general requirements of the PCS.

(i) Non-Profit Entity is responsible for training all PCS staff and any replacement personnel.

(ii) Engineer will communicate the location, date, and time of training to Non-Profit Entity during the time period between the Contract Award and the Notice to Proceed.

(iii) A complete training manual and guide to procedures for the PCS System will be distributed for informational purposes to illustrate how Engineer's process complements Non-Profit Entity'sprocess.

Non-Profit Entity shall be required to train Contractor's PCS participants on the principles and operation of PCS and Adobe Acrobat Professional prior to Notice to Proceed.

(h) RTU Training from Contractor to City Staff. Training for RTU operation and maintenance for ten (10) people in two (2) sessions, one day shift and one swing shift shall be provided to MUNI personnel by the equipment manufacturer.

MUNI shall provide facilities for training; manufacturer shall provide all training material and equipment.

All travel and living expenses for the trainer shall be included in the bid.

22. Clean Construction. Non-Profit Entity agrees to comply fully with and be bound by the Clean Construction requirements set forth in Section 6.25 of the San Francisco Administrative Code and Chapter 25 of the Environment Code. The provisions of Section 6.25 and Chapter 25 are incorporated into this Agreement by reference. Non-Profit Entity may seek waivers from the Clean Construction requirements as set forth in Chapter 25 of the Environment Code. By entering into this Agreement, Non-Profit Entity and City agree that if Non-Profit Entity uses off-road equipment and/or off-road engines in violation of the Clean Construction requirements set forth in Section 6.25 of the Administrative Code and Chapter 25 of the Environment Code, the City will suffer actual damages that will be impractical or extremely difficult to determine. Accordingly, Non-Profit Entity and the City agree that Non-Profit Entity shall pay the City the amount of $100 per day per each piece of off-road equipment and each off-road engine used to complete work on the Project in violation of the Clean Construction requirements. Such amount shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Non-Profit Entity's failure to comply with the Clean Construction requirements.

23. Compliance with Americans with Disabilities Act. Non-Profit Entity shall provide the Work in a manner that complies with the Americans with Disabilities Act (ADA), including but not limited to Title II's program access requirements, and all other applicable federal, state and local disability rights legislation.

24. Government Code Claim Requirement. No suit for money or damages may be brought against the City until a written claim therefor has been presented to and rejected by the City in conformity with the provisions of San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq. Nothing set forth in this Agreement shall operate to toll, waive or excuse Contractor's compliance with the California Government Code Claim requirements set forth in San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq.

25. Restrictions on Use of Pesticides. Chapter 3 of the San Francisco Environment Code (the Integrated Pest Management Program Ordinance or "IPM Ordinance") describes an integrated pest management ("IPM") policy to be implemented by all City departments. PCC-Related Entities shall not use or apply or allow the use or application of any pesticides on the Project Site or contract with any party to provide pest abatement or control services to the Project Site without first receiving City's written approval of an IPM plan. PCC-Related Entities will comply, and will require all of PCC-Related Entities' contractors to comply, with any IPM plan approved by the City and will comply with the requirements of sections 300(d), 302, 304, 305(f), 305(g), and 306 of the IPM Ordinance, as if PCC-Related Entities were a City department.

26. All-Gender Toilet Facilities. If applicable, PCC-Related Entities will comply with San Francisco Administrative Code Section 4.1-3 requiring at least one all-gender toilet facility in any new building constructed on City-owned land or that is constructed by or for the City where toilet

facilities are required or provided. An “all-gender toilet facility” means a toilet that is not restricted to use by persons of a specific sex or gender identity by means of signage, design, or the installation of fixtures.

EXHIBIT 16D

SFMTA'S SURVEILLANCE TECHNOLOGY POLICY

See the SFMTA policy at the attached link:

https://sf.gov/sites/default/files/2022-03/MTA_Security%20Camera%20Policy%20Final%20Draft%202-25-21.pdf

EXHIBIT 17

SECTION 3.6 INVOICE

Reference is made to that certain Design-Build-Finance Agreement dated as of [_____], 2026 (the "**Agreement**"), by and between the City and County of San Francisco ("**City**"), a municipal corporation acting by and through the San Francisco Municipal Transportation Agency ("**SFMTA**"), and PRG – Potrero Properties LLC ("**Non-Profit Entity**").

Capitalized terms used but not defined herein have the meaning given to them in this Agreement.

Pursuant to Section 3.6 of this Agreement, Non-Profit Entity hereby requests payment of [_____] U.S. dollars ($[_____]), based on the following: (a) this Agreement has been terminated under Section 3.6.1 or Section 3.6.2 of this Agreement; (b) this invoice is submitted within 30 days of the termination; and (c) Non-Profit Entity has submitted to City all work product produced by Non-Profit Entity related to the Project, as required in Section 3.6.5 of this Agreement.

Non-Profit Entity represents and warrants to City that: (a) Non-Profit Entity is eligible for payment pursuant to Section 3.6 of this Agreement; and (b) Non-Profit Entity has attached documentation reasonably required by City sufficient to support such statement.

Non-Profit Entity acknowledges that: (a) such payment is the exclusive compensation payable by City to Non-Profit Entity under this Agreement for a termination under Section 3.6.1 or Section 3.6.2 of this Agreement; and (b) submission of this invoice, and payment by City of any amount in response to this invoice, is in all respects subject to the terms and conditions of this Agreement.

EXHIBIT 18

TECHNICAL REQUIREMENTS

[SEE ATTACHED]

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:

Technical Requirements

February 18, 2026

FINAL

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The SFMTA Potrero Yard Modernization Project

Division 1: General Provisions

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:
Technical Requirements

Division 01:
General Provisions

February 18, 2026

FINAL

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PROJECT DESCRIPTION

The Project will demolish the SFMTA's existing, outdated 100+ year old transit facility located on 4.4 acres at 2500 Mariposa Street, between 17th, Bryant, and Hampshire Streets and replace it with a modern, three-story bus maintenance, storage, and training facility to service the SFMTA's all electric trolley bus transit fleet, which may transition in the future to battery-electric buses. The IFM Facility will provide efficient transit-related services to San Francisco, aligning with SFMTA's commitment to safe, equitable, and sustainable transportation. The Project also demonstrates the City's commitment to zero-emission public transit, to delivering modern amenities for SFMTA employees, and to contributing a new building with improved site connectivity and urban design to the Mission and Potrero neighborhoods. As a core facility for the SFMTA's citywide transit operations, the Project represents an operationally critical public infrastructure project for the City.

Additionally, development plans are proposed to build mixed use commercial and residential uses adjacent to the Infrastructure Facility to help the City towards fulfilling its 2022 Housing Plan.

The Project consists of a single, integrated Infrastructure Facility, generally described as follows. Development of the HCC shall be subject to a separate HCC Agreement:

Infrastructure Facility (or IF). The IF shall be a podium structure with four levels for bus storage and maintenance. The IF includes bus and non-revenue vehicle parking and circulation; bus maintenance service and storage facilities; and administration offices, a bus operator training facility, and other support spaces. The IF must have the minimum capacity to store at least 246 buses, which is a nearly 50% increase in capacity from the current operation. In addition, for resiliency purposes, the IF must be built to structural and seismic standards that exceed the minimum code requirements and shall achieve LEED Gold rating and meet other City sustainability policies.

Housing and Commercial Component (or HCC): The potential HCC is the preferred alternative, which is envisioned to be a multi-floor housing project immediately adjacent to and on the perimeter of the Infrastructure Facility podium along Bryant Street. This option would also include ground floor uses, appropriate for a diverse neighborhood, to activate street frontages at the perimeter of the podium such as commercial or other uses. HCC development is not part of the Project and is subject to a separate HCC Agreement.

1. GENERAL PROVISIONS

1.1. PROJECT MANAGEMENT

A. Non-Profit Entity is responsible for all elements of the management of the Project. Non-Profit Entity shall manage the Project through the application of a defined management approach, procedures, systems and reporting mechanisms, designed to maintain control of scope, schedule, quality, and budget, as further defined herein.

B. Where submittals to the City are required in this Division 1 and other sections of this Exhibit 18, they shall be made in accordance with the submission dates and for the City action defined in Exhibit 18, Division 1 Appendix B (Initial List of Submittals).

C. When planning or executing Project management, Non-Profit Entity shall consider and address all applicable Law, including those in Exhibit 16 (Federal, State, and Local Requirements) and other requirements that may result from the Project receiving Federal funding.

1.1.1. Project Management Plan

A. Non-Profit Entity shall submit to the City a D&C Project Management Plan (PMP) that describes the management approach, procedures, systems and reporting mechanisms, and provides scope, schedule, quality, and cost management for the D&C Period. Non-Profit Entity shall manage the Project in accordance with the City-approved PMP.

B. Non-Profit Entity's PMP shall, at a minimum:

1. Provide a detailed Project description and summary scope of work.
2. Provide clear, actionable and measurable objectives of the Project.
3. State the purpose of the PMP, which description shall delineate how the Project is going to be managed by Non-Profit Entity, with support from and through the performance of Non-Profit Entity-Related Entities, including separate D&C Contractor.
4. Describe and distinguish between the roles and responsibilities, including the organizational structure, of the Non-Profit Entity and Non-Profit Entity-Related Entities to perform their corresponding scope of the Work as well as how the Non-Profit Entity will manage the interfaces where one entity's corresponding scope of the Work interfaces with another.
5. An organizational chart that clearly illustrates these roles and responsibilities among Non-Profit Entity and Non-Profit Entity-Related Entities.
6. Incorporate the Project Schedule.
7. Describe the process for information management, how Non-Profit Entity will exchange information with the City.
8. Describe change management procedures and protocols to incorporate and accept modifications to the Agreement scope.

9. Describe (i) the process for developing, implementing, and managing a D&C Quality Management Plan, and (i) how quality results will be independently observed, measured, reported, and documented for the Project to ensure that the Project deliverables and completed Work meet the minimum required standards of quality.
10. Define the lines of communication and the methods of communication to be used, identifying roles and responsibilities with respect to communications, and defining what each individual role is responsible for communicating and to whom, how frequently they need to communicate, which communications tools and media will be used, and any specific triggers for initiating communication.
11. Coordinate and incorporate all other Project-specific plans, including those supplemental plans defined in Section 1.1.7 (Design and Construction Management Plans), identifying through cross-referencing such plans.
12. Be sufficiently developed and readily updatable to facilitate external audits, including audits performed by the City.
13. Describe how the Non-Profit Entity plans to utilize Disadvantaged Business Enterprises.

1.1.2. General Coordination with the City

A. Non-Profit Entity shall establish a comprehensive coordination process with the City to minimize risk impacts to scope and schedule performance associated with contracts for design, construction, and systems integration activities. Refer to separate provisions in Section 1.12 (Coordination with Third Parties) and Section 1.13 (Coordination with Utility Owners).

1.1.3. Project Meetings

A. Non-Profit Entity shall conduct Project meetings to enable orderly review of the progress of the Work with the City, and to provide for systematic discussion of items and issues affecting the progress and outcome of the Work. The following are initial and ongoing meeting minimum requirements, Non-Profit Entity shall propose additional meetings as needed to fulfil the Agreement requirements.

B. Non-Profit Entity personnel attending and participating in Project meetings as Non-Profit Entity representatives shall have the required levels of authority to commit Non-Profit Entity to actions and resolutions agreed upon during such meetings.

C. Non-Profit Entity shall electronically manage meeting calendars, notifications and invitations on a real-time basis.

D. Non-Profit Entity shall, to the greatest extent possible, provide to the City agendas and meeting materials at least three Business Days in advance of meetings. Non-Profit Entity shall lead and facilitate meetings and shall prepare and distribute meeting minutes to the City and all attendees for their review and comment within three Business Days after concluding the meeting.

E. The City may require, with reasonable notice to Non-Profit Entity, additional meetings at any time, at no additional cost to the City.

1.1.3.1. Project Work Initiation Meeting

A. Non-Profit Entity shall conduct a Project Work initiation meeting upon receiving the City's notification of Contract award and shall submit to the City the agenda and meeting minutes. Relevant Key Personnel shall attend the Project Work initiation meeting and those in attendance shall address:

Project Management Plan, including Key Personnel resumes and team organization chart.

1. Initial Schedule.
2. Approach to D&C Work.
3. Information Management Plan.
4. Third Party and Utility Owner Coordination Work, including integration and permits.
5. Project Quality Program overview .
6. Plan and status for development of various other required Project Plans.
7. Submittal procedures and document control/records management.
8. Inclusivity, including Small Business Enterprise, Local Business Enterprise, Local Small Business Enterprise and Disabled Veteran Business Enterprise participation.
9. Approach to sustainability.
10. Public Outreach Plan.
11. Insurance certificates and other commercial/financial instruments needed before commencing with the Work.
12. Early Works and other topics deemed necessary by the City or Non-Profit Entity.

1.1.3.2. Design Initiation Meeting

A. Non-Profit Entity shall conduct a Design Initiation Meeting upon receiving the City's NTP 1 and shall submit to the City the agenda and meeting minutes. Relevant Key Personnel shall attend the Design Initiation Meeting and those in attendance shall address:

1. Design Management Plan, including lead personnel and design team organization chart.
2. Explanation of Design Work locations and logistics.
3. Submittals list and design review procedures.
4. Project Design Quality Plan.
5. Design of safety considerations.
6. Design of security considerations.
7. BIM Project Execution Plan.
8. Other topics deemed necessary by the City or Non-Profit Entity.

1.1.3.3. Construction Initiation Meeting

A. Non-Profit Entity shall conduct the Construction Initiation Meeting prior to NTP2 and shall submit to the City the agenda and meeting minutes. Relevant Key Personnel shall attend the Construction initiation meeting and those in attendance shall address:

Major construction and field activities.

1. Construction Management Plan, including lead personnel and construction team organization chart.
2. Explanation of construction field offices, storage yards, materials laydown and staging areas, crane locations, etc..
3. Most current Project Schedule incorporating timing of deliveries, construction phasing plans, and other worksite logistics.
4. Construction Quality Work Plans.
5. Plan to demarcate any restricted zones and within the Project Site.
6. Construction safety plans in compliance with Division 10 of the Technical Requirements (Exhibit 18)
7. Site Security Plan.
8. Health and illness prevention plans.
9. Transportation Management Plan and Traffic Control Plan.
10. Environmental permitting, monitoring and mitigation measures compliance plans and reporting, including the environmental procedure requirements in Division 10 of the Technical Requirements, and the Sustainability Management Plan.
11. Project controls processes and procedures for maintaining and retrieving current status documents, and including protocols for archiving and safekeeping Record Documents.
12. BIM Project Execution Plan.
13. Other topics deemed necessary by the City or Non-Profit Entity.

1.1.3.4. Weekly Project Coordination Meetings

A. Weekly Project coordination meetings shall be conducted by Non-Profit Entity throughout the D&C Period covering a three-week Project Schedule review period (one week back and two weeks forward) of daily activity including schedule activities and sub-activities, interfaces, milestones, deliveries, and other events significant to Project Schedule performance.

B. Non-Profit Entity shall prepare and submit to the City the agenda for each Weekly Project coordination meeting and include meeting minutes from the previous week's meeting.

C. Representatives of Non-Profit Entity's team responsible for the activities presented in the Three-week Look-ahead Activity Reports, as defined in Section 1.2.1.8 (Look-Ahead Activity Reports), shall be present to discuss activities and coordination with others.

D. Weekly Project coordination meetings shall include invited representatives of Third Parties, Utility Owners, and specialty engineers and subcontractors as necessary. Non-Profit Entity shall invite the City to these meetings, who may have representatives attend representing subject matters related to the schedule activities.

E. Weekly Project coordination meetings shall address, but not be limited to, the following:

Precedence and other constraints caused by outside parties that occur during the forthcoming two weeks that may potentially delay the Project Schedule activity or sub-activity.

1. Issues and actions that are needed to maintain these scheduled activities and sub-activities, such as Regulatory Approvals, material deliveries, equipment mobilization and setup. and
2. Actual schedule accomplishment defined in the previous week reflected in the Project Schedule.
3. Progress on Regulatory Approvals and Regulatory Approvals Plan
4. Status and track of Delay Events and Relief Events and
5. Status and tracking of City Changes.

1.1.3.5. Monthly Progress Meetings

A. Non-Profit Entity shall conduct Monthly Progress Meetings and shall submit to the City meeting minutes. Attendees shall include, at a minimum, all relevant Key Personnel and the City representatives. Non-Profit Entity shall commence the first of Monthly Progress Meetings one week after submission of the first Monthly Progress Status Report, and continue these progress meetings throughout the D&C Period. Such meetings shall involve, at a minimum, the Non-Profit Entity reporting to and discussing with the City recently completed and relevant upcoming activities related to the following topics:

1. Project Schedule, including actual progress during prior 30-day reporting cycle and progress forecasted for next 90 Days.
2. Design Management Plan and Construction Management Plan.
3. Quality. Quality Program including the Design Quality Plan, as appropriate, and Construction Quality Plan.
4. Safety. Health and Safety Plan.
5. Site Security Plan.
6. Environmental compliance and permitting, and the Sustainable Management Plan.
7. Third Party and Utility coordination work and progress.
8. Transportation Management Plan and Traffic Control Plan.
9. Inclusivity.
10. Public Outreach Plan.
11. Submittals and review process.

12. Design modifications and other changes in scope, coordination on Allowance-related scope, schedule and costs impacting budget and schedule forecasts, along with proposed mitigations and/or corrections. Regulatory Approvals Plan, Design Management Plan and Design Progress Tracking Reports. Substantial Completion planning and coordination.
13. Progress on work related to the Non-Profit Entity's Allowances, including records of quantities, units, or other agreed-upon metrics, including submission of corresponding documentation to the City in support of such quantities.
14. Other pertinent and timely discussion topics.

B. As part of each Monthly Progress Meeting, Non-Profit Entity shall report on and discuss with the City the status, progress, and coordination of Utility Work and Third Party Work, including:

1. Updates on procedures for Utility Work and Third Party Work, including inspection and acceptance of facilities or other work to be owned by a Utility Owner or Third Party upon completion.
2. Status of Submittals required under applicable Utility Agreements, Third Party Agreements, and the Contract Documents.
3. Updates to the Submittal List as it relates to each Utility Owner and Third Party.
4. Progress against the approved Project Schedule relevant to Utility Work and Third Party Work.
5. Design and review responsibilities, including progress on applicable standards, procedures, and approvals.
6. Performance responsibilities, including progress on applicable standards, procedures, and approvals.
7. Inspection, testing, and acceptance activities required for Utility and Third Party facilities, including any work required to place Utility facilities into service.
8. Quality assurance and quality control measure being implemented for Utility Work and Thid Party Work.
9. Any additional information, plans, or procedures required under the applicable Utility Agreement or Third Party Agreement.
10. Design interface dates for each Owner Adjusted Utility.
11. The relevant number and execution date of each executed Utility Work Order.
12. Each design agreement execution date.
13. Each construction agreement execution date.
14. The date on which any completed as-built plans were delivered to or by Non-Profit Entity, as applicable.

1.1.3.6. Ongoing Coordination Meetings

A. Non-Profit Entity shall arrange and minute additional meetings as described herein Division 1, and as needed to fulfil the Agreement, such as:

1. Third Party coordination meetings

2. Utility coordination meetings
3. City outreach meetings
4. Community Stakeholder meetings
5. Potrero Yard Neighborhood Working Group meetings

1.1.3.7. Special Meetings

A. Non-Profit Entity shall conduct special meetings as necessary throughout the D&C Period, including meetings at the City's request. Special meetings may include timely discussions of any issues relevant to the Project.

B. Non-Profit Entity shall provide, within the meeting invitation, a brief narrative about the issue or concern and a brief narrative of any suggested solutions to mitigate adverse schedule and cost impacts.

C. Non-Profit Entity shall schedule meetings to discuss testing, performance demonstration, and operational readiness with no less than five Business Days' advance notice to invitees, and shall endeavor to enclose briefing materials within the body of the meeting invitation.

D. Non-Profit Entity shall schedule other special meetings with not less than five Business Days' notice otherwise it is in the City's sole discretion for participation in the meeting.

1.1.4. Key Personnel

A. Non-Profit Entity shall provide individuals meeting the requirements of each Key Personnel position defined in this Section 1.1.4.

B. Non-Profit Entity shall prepare, submit to the City, and maintain a Key Personnel register with name, firm, title, project role, address, email, and phone number for each Key Personnel as well as resumes. Key Personnel shall meet the requirements of Section 9.5 of the Agreement. Key Personnel shall not be changed or replaced without the City's concurrence as evidenced by documented review and acceptance of a replacement in advance.

C. Non-Profit Entity shall submit to the City resumes for any proposed replacement of Key Personnel, each a Candidate Key Person Replacement resume with three references, aligned with the requirements of the Agreement. References shall be from previous owners, clients, or employers and include the name, position, company, or agency and current postal and email addresses and phone numbers for each reference. Accordingly, the City will formally respond and reserves the right to interview replacement Key Personnel candidates prior to their acceptance.

D. Where Key Personnel are required to be located at the Project Site, such requirement is deemed inclusive of location at the offices defined in Section 1.11.4.2 (Project Management Office Requirements) and Section 1.11.4.3 (Construction Management Office Requirements).

1.1.4.1. Project Director

A. The Project Director shall be responsible for managing NPE's day-to-day activities on a full-time basis for the Project, including ongoing communications and coordination with City and acting as the main point of contact between City and NPE.

B. The Project Director shall have, at a minimum, 20 years of competent experience in a senior position within an organization where his/her principal professional experience has been as an infrastructure developer.

1.1.4.2. Project Manager

A. The Project Manager shall have full responsibility for the execution of the Work on behalf of Non-Profit Entity.

B. The Project Manager for the D&C Period shall have, at a minimum, 15 years of competent experience in a senior position within an organization where he/she had responsibility for:

At least one P3 project with a capital construction cost of more than $150 million and a contract duration greater than 15 years; and

1. Integrating design, construction, operations and maintenance on at least one project of similar complexity.

1.1.4.3. Deputy Project Manager

A. The Deputy Project Manager shall provide support to the Project Manager in performing the daily management and coordination of the Work on behalf of NPE.

B. The Deputy Project Manager for the D&C Period shall have, at a minimum, 8 years of progressive relevant experience where he/she had provided support for:

C. At least one design-build or P3 project with a capital construction cost of more than $150 million of similar scale and complexity.

D. Integrating design, construction, operations and maintenance on at least one project of similar complexity

1.1.4.4. Equity Member's Project Principal

A. The Equity Member's Project Principal is the person each Equity Member proposes as their representative principally responsible for that Equity Member's role on the NPE.

B. The Equity Member's Project Principal shall have, at a minimum, 15 years of competent professional experience.

C. If the Equity Member's Project Principal will also serve as the NPE's Project Director, that Equity Member's Project Principal shall have a minimum of 20 years of competent experience in a senior position within an organization where his/her principal professional experience has been as an infrastructure developer.

1.1.4.5. Engineer(s) of Record

A. Each Engineer of Record (EOR) shall have a bachelor's degree or equivalent diploma from an accredited educational institution and shall be a currently licensed professional engineer registered under the laws of the State of California. Engineer(s) of Record shall have experience, in a lead design role, on at least two projects of similar scope and complexity. each with a capital construction cost of not less than $150 million, completed within the last 10 years.

B. An EOR may also serve in the role of the Design Manager subject to demonstration of his/her qualifying experience and competence to the City's satisfaction.

1.1.4.6. Architect(s) of Record

A. Every Architect of Record (AOR) shall have a bachelor's degree or equivalent diploma from an accredited education institution and each individual shall be a currently licensed architect registered under the laws of the State of California. AOR(s) shall have experience, in a lead design role, on at least two projects of similar scope and complexity, each with a capital construction cost of not less than $150 million, completed within the last 10 years.

B. An AOR may also serve in the role of the Design Manager subject to demonstration of his/her qualifying experience and competence to the City's satisfaction.

1.1.4.7. Design Manager

A. The Design Manager is responsible for managing and overseeing the Project's development and coordination of the integrated design on behalf of Non-Profit Entity.

B. The Design Manager shall have relevant experience on at least three design-build projects, each with a capital construction cost of not less than $100 million. The Design Manager shall have at least 10 years of relevant design, supervisory and management experience.

C. The Design Manager shall be located in San Francisco bay area, assigned full-time from Financial Close until all major design milestones are completed.

1.1.4.8. Construction Manager

A. The Construction Manager is responsible for managing and overseeing the activities of construction on behalf of Non-Profit Entity, from pre-construction to the end of construction and turnover of the facility to its end-users.

B. The Construction Manager shall have previous relevant experience as a project/construction manager on at least three design-build projects, each with a capital construction cost of not less than $150 million.

C. The Construction Manager shall be located at the Site, assigned full-time and exclusively for the Project throughout the D&C Period and until Substantial Completion.

1.1.4.9. Quality Program Manager

A. The Quality Program Manager shall have the authority and responsibility for managing and overseeing quality-related activities for all aspects of the Work, including the establishment and maintenance of, and compliance with, the Quality Program Plan (PQPP).

B. The Quality Program Manager's Project-specific responsibilities shall be limited to only quality assurance and quality improvement. The Quality Program Manager shall act independently from Non-Profit Entity's staff and the duties of such staff associated with the execution of the Work.

C. The Quality Program Manager's authority shall be independent of the Project Manager and shall be equivalent to the authority of the Project Manager with respect to assuring and controlling quality results. It shall be the duty of the Quality Program Manager to report to superiors above the level of the Project Manager, and to the City, on the performance of, and compliance with, all Project management and quality plans. The Quality Program Manager shall be available as needed to perform their Project duties throughout the D&C Period.

D. The Quality Program Manager shall have a minimum of 10 years of relevant quality management and supervisory experience on projects of similar scope and complexity. The Quality Program Manager shall have undertaken training in the use and application of internationally recognized quality programs, including the application of ISO 9001.

1.1.4.10. Project Safety Representative

A. The Project Safety Representative (PSR) shall manage and oversee safety issues related to the Project, working closely with the Design Manager and the Construction Manager during the D&C Period and as specified in Division 10, section 01 35 45 of the Technical Requirements. .

1.1.5. Non-Profit Entity Services

A. Non-Profit Entity shall be responsible for providing the following services during the Term:

1. Project management including cost control and management, schedule control and management, and risk management.
2. City Relocation Services.
3. Information management.
4. Public information and communications.
5. Utility coordination.
6. Third Party coordination.
7. Interface management.
8. Environmental compliance and mitigation monitoring.
9. Safety and Security.
10. Quality assurance and quality control.
11. Design, design management and design assurance.
12. Develop and manage Allowances for Infrastructure Facility.
13. Subsurface and Site investigations
14. Surveys and land surveying.
15. Pre-construction.

16. Procurement.
17. Administration of Contractors, Suppliers and Vendors.
18. Construction and construction management.
19. Commissioning, Verification, Testing and achieving operational readiness.
20. Training of SFMTA staff on facility use and operations.
21. Move-in services
22. Producing an asset management plan and provision of parts inventory.

1.1.6. Regulatory Approvals Plan

Non-Profit Entity shall prepare and submit to the City a Regulatory Approvals Plan defining its approach to obtain all Regulatory Approvals during the D&C period including approvals from City departments in their regulatory capacity, and all Authorities Having Jurisdiction. This plan shall specifically address the Non-Profit Entity's construction permitting plan that is coordinated with the Project Schedule.

1.1.7. Design, Construction, and Offsite Utility Investigation Management Plans

Non-Profit Entity shall prepare a Design Management Plan, a Construction Management Plan, and an Offsite Utility Reasonable Investigation Plan as supplements to the PMP.

1.1.7.1. Design Management Plan

A. Non-Profit Entity shall prepare and submit to the City a Design Management Plan (DMP) describing its approach to undertake and achieve the requirements in Section 1.8 (Design Management).

B. The DMP shall:

1. Describe the design organizational structure, design phase staff positions, and descriptions of the organizational relationships within Non-Profit Entity's design, construction, and quality management organizations;
2. Describe the planned design packaging scheme and reviews process, including internal, City's proprietary review packages, and permit reviews by all AHJs;
3. Describe the content and format of each design stage package submission;
4. Describe the Non-Profit Entity's design management, workflow process, and design environment prescriptions;
5. Describe how the design process will comply with the Project Design Quality Plan (PDQP) in Section 1.4.2;
6. Address when and how coordination will occur with the City regarding Allowances and any other City-furnished and installed FF&E;
7. Address how the design deliverables will be managed to fulfill their associated deadlines to submit them for reviews and/or approvals;
8. Address how design reviews by the City will be managed by the Non-Profit Entity, including resolution and record-keeping of City design review comments;
9. Address how changes to the Project will be recorded, tracked, and communicated; and
10. Incorporate the BIM Project Execution Plan (see Section 1.10)

C. The Design Management Plan shall include a section that describes the Non-Profit Entity's procedures to obtain proprietary and regulatory design reviews and, as applicable, approvals of Design Deliverables. All proprietary design reviews shall be consistent with Exhibit 11 (Submittal Review Process) and Section 1.8.5(Proprietary Design Reviews).

1.1.7.2. Construction Management Plan

A. Non-Profit Entity shall prepare and submit to the City a Construction Management Plan (CMP) describing its approach to undertake and achieve the requirements in Section 1.11 (Construction Management).

B. The CMP shall include:

1. The construction organizational structure, construction phase management and staff positions, and descriptions of the organizational relationships within Non-Profit Entity's design, construction, and quality management organizations;
2. Non-Profit Entity's construction phasing plan and sequencing approach to the Project;
3. Non-Profit Entity's plan for conducting pre-construction surveys and conditions for existing structures in and surrounding the Project Site, utilities, and other infrastructure, as required to perform the D&C Work;
4. Explanation of how Non-Profit Entity will perform construction planning and logistics, with specific mention of when and how construction coordination will occur with the City regarding any City Furnished Equipment and
5. Request for Information and Change processes
    a. Such changes are subject to the requirements of Exhibit 9 (Change Procedures).

1.1.7.3. Offsite Utility Reasonable Investigation Plan

A. Non-Profit Entity shall prepare and submit to the City an Offsite Utility Reasonable Investigation Plan describing its approach to undertake offsite utility investigations related to bringing new power service to the Project Site. The plan shall be a written report that tiers off of the PMP.

B. The Offsite Utility Reasonable Investigation Plan shall describe the steps and decision points by which NPE will identify and determine the best value route for bringing new power to the Project Site, including:

1. Consultation processes with the City, PGE, and other AHJs.
2. Permits required and permitting status.
3. Collection and use of As-Builts.
4. Potholing or other physical investigation methods.
5. Route alternatives and factors for determining the best value (e.g. cost vs. speed vs. complexity).
6. Evaluation of construction methods and their relative costs (e.g. trenching vs. drilling).
7. Schedule covering the 135-day period showing key activities and decision milestones.

1.1.7.4. BEB Charging Infrastructure and BEB Charging Equipment Layout Space Plan

A. Non-Profit Entity shall prepare and submit to the City a BEB Charging Infrastructure and BEB Charging Equipment Layout Space Plan describing its approach to determine available layout spaces and clearances for BEB Charging Infrastructure and BEB Charging Equipment (as described in Division 5 of the Technical Requirements) in the basement level, level 2, and level 4 of the Infrastructure Facility. The plan shall be a written report that tiers off of the PMP.

B. The BEB Charging Infrastructure Layout and BEB Charging Equipment Space Plan shall describe the steps and decision points by which NPE will identify and determine the available space for BEB Charging Infrastructure and BEB Charging Equipment in the Infrastructure Facility with the goal of minimizing significant downtime or disruption to regular SFMTA operations in the event SFMTA elects to transition the Infrastructure Facility from supporting electric trolley buses (ETB) to supporting Battery Electric Buses (BEB) no sooner than 2040. The BEB Charging Infrastructure and BEB Charging Equipment Layout Space Plan will include:

1. Consultation processes with the City.
2. BEB Charging Infrastructure and BEB Charging Equipment layout options that include:
    a. A test fit (in plan view) of the main electrical room will be provided that indicates if there is sufficient space for the anticipated additional gear and other BEB Charging Equipment, and if not, how much more space is needed.
    b. Sleeves out of the main electrical room and between floors that are sufficiently sized to meet the power distribution needs of the future BEB Charging Infrastructure and BEB Charging Equipment. For the avoidance of doubt, no additional conduit or other BEB Charging Equipment will be provided in the main electrical room.
3. Schedule showing key activities and decision milestones up until completion of the SD+/Program Validation/Value Engineering process (identified in the Initial Schedule).

C. If during the SD+/Program Validation/Value Engineering phase it is determined by the City that there is sufficient available space, recognized as reasonably unobtrusive renovation or retrofit within the existing Infrastructure Facility, then NPE will incorporate the Layout Space Plan elements into the Design Documents and construct them.

D. If during the SD+/Program Validation/Value Engineering phase it is determined by the City that there is insufficient free/clear space available, NPE will prepare a conceptual plan on how the Infrastructure Facility needs to be modified to accommodate BEB Charging Infrastructure and BEB Charging Equipment. This plan will include:

1. A high-level comparison of the pros and cons of up to three design layout options for BEB Charging Infrastructure and BEB Charging Equipment;
2. Overall structural impacts to accommodate the creation of the additional space for BEB Charing Infrastructure and BEB Charging Equipment, such as an expansion of the Level 2 or design modifications needed to the columns/slabs to accommodate anticipated loads;
3. Locations for BEB Charging Infrastructure and BEB Charging Equipment (as described in Division 5 of the Technical Requirements).

E. In the event the required space for BEB Charging Infrastructure and BEB Charging Equipment can be accommodated by strengthening the existing building without constructing additional floor space, no additional cost will be added to the project

F. In the event additional building space (square footage) is required in order to accommodate the required space for BEB Charging Infrastructure and BEB Charging Equipment, City may issue a change order to NPE. The scope of the change order would include, among other things, the following:

1. Work needed to create the additional layout space and clearances (as described in the preferred design layout selected by the City) for future switchgear, power distribution systems, housekeeping pads, housings, integrated structural components, space for mounting solution(s), and associated wire ways, conduit, and cable trays; space and penetrations for the required routing layout to support the future charging system's associated IT cabling, as set forth in Division 5 of the Technical Requirements; and
2. Work needed for any additional fire protection design requirements for the preferred design layout selected by the City.

G. Notwithstanding anything to the contrary in Exhibit 18 to IF Agreement, NPE's only obligations with respect to BEB-related work shall be as set forth in this Section 1.1.7.4.

1.2. PROJECT CONTROLS AND PERFORMANCE MEASUREMENT

1.2.1. Project Schedule

A. It is expressly understood and agreed that the time of beginning, the rate of progress, and the time of completion of the work are of the essence of the Agreement. The Work shall be executed with such progress as required to prevent any delay to the Project, the Contract Deadlines, and the general completion of the Agreement.

B. Non-Profit Entity's Initial Project Schedule in Exhibit 4 of the Agreement shall be a detailed critical path method schedule and shall govern all Work from the Effective Date until NTP2.

C. Non-Profit Entity's Project Schedule shall be a detailed critical path method schedule for the entire Project, applicable from NTP2 to Final Acceptance, and shall incorporate scheduling information details exhibited in the Initial Schedule and subsequently updated and refined through an interactive process defined in Section 1.2.1.1 (Project Schedules).

D. The Project Schedule shall demonstrate that adequate planning, scheduling, and resource allocations occur to provide a reasonable and executable baseline work plan.

E. Non-Profit Entity shall use the applicable Project Schedule for coordinating the various Work sequences, monitoring the progress of completed Work activities, identifying pending Work, and evaluating the effect of scope changes and re-sequencing of Work activities. The Project Schedule and subsequent revisions and updates shall comply with all requirements defined in Section 1.2.2 (Schedule Requirements). All Work Activities shall have appropriate durations that allow measurement of their progress. In general, if a reasonable estimate of progress against a proposed Work Activity cannot be reasonable measured, a Work Activity shall be separated into multiple Work Activities such that monitoring of actual progress versus planned progress can be reasonably ascertained.

F. The Project Schedule shall include all required City and Third Party activities and/or milestones as may be reasonably known by Non-Profit Entity. At a minimum, these activities and milestones shall include but not be limited to:

   1. Reviews of submittals and special instructions as may be detailed in the Contract Documents; and
   2. Adequate time for City to install and test any City-furnished FF&E related to an Allowance or the preliminary equipment list.

G. The Project Schedule shall comply with all schedule requirements of the Contract Documents. The Project Schedule shall have activities depicting a logical sequence of coordinated work products and deliverables each of reasonable duration for which progress can be readily reported and verified.

H. Design Work, including time-critical preconstruction planning and coordination, may commence immediately after Non-Profit Entity's receipt of NTP 1, provided however, that such activities are addressed in the Design Management Plan and Project Design Quality Plan, for which submissions have previously been received by the City.

I. In the event the Contractor fails to define any element of work, activity or logic and the City review does not detect this omission or error, such omission or error, when discovered by the Contractor or City, shall be corrected by the Contractor at the next monthly Schedule Update and shall not affect any Contract Deadline.

J. Pursuant to float sharing requirements of this Section, use of any float-suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times or durations are prohibited.

K. The City-Furnished Equipment, if any, are the Non-Profit Entity's responsibility to identify as separate construction activities. Indicate delivery dates, logic ties to predecessor and successor activities or schedule windows of such items set forth in the Contract or furnished by the City.

L. The Non-Profit Entity is responsible to include Project start-up, testing and commissioning activities in the Project Schedule detailing all activities needed to provide a fully functional facility that meets all building management systems, fire-life-safety and City requirements in accordance with Division 6 of the Technical Requirements.

1.2.1.1. Project Schedules

A. Several forms of the Project Schedule shall be required, as further defined below:

   1. Initial Project Schedule
   2. Baseline Project Schedule
   3. Revised Project Schedule
   4. Recovery Schedule

B. Non-Profit Entity shall archive each Monthly Progress Status Report and Monthly Project Schedule Update, together with all the City-approved Project Schedules.

C. Non-Profit Entity shall maintain an up-to-date and validated As-Built Schedule throughout the course of construction.

1.2.1.2. Initial Project Schedule

The Initial Project Schedule is included in Exhibit 19 of the Agreement.

1.2.1.3. Baseline Project Schedule

A. No later than 60 Days prior to scheduled NTP2, the Non-Profit Entity shall submit to the City for review and approval an update to the Initial Project Schedule that:

1. conforms to all milestones in the Agreement and the Initial Project Schedule (as applicable);
2. details all D&C Work activities between NTP2 and Final Acceptance to a Level 4 as defined in AACE 91R-16 “Schedule Development” or following other Best Management Practice as reasonably approved by the City; and
3. conforms to all requirements established in this section 1.2 of Division 1 of the Technical Requirements (the “Baseline Project Schedule” or “BPS”).
4. The BPS shall be cost-loaded and include projections of man-hours for the D&C Work. The cost-loading and man-hour projections shall be applied to level 4 of the work breakdown structure at a minimum.
5. The City shall review and provide its rejection, comments, or approval within the time periods specified in Exhibit 11 to the Agreement (Submittal Review Process). Non-Profit Entity shall resubmit a revised BPS, and any subsequent revision thereof, with a full disposition of all comments provided by City within the allotted time period.
6. Once the City has approved the BPS, Non-Profit Entity and City shall each keep the BPS in its original form as approved by the City, without any further revisions, for the remainder of the Construction Period. The BPS shall serve as the basis of comparison between such BPS and the then current Project Schedule, as subsequently revised and updated in accordance with the Contract Documents.
7. A City-approved Baseline Project Schedule is a condition precedent to NTP2.
8. The initial Project Schedule shall exactly match the Baseline Project Schedule, except that the Project Schedule need not include the cost-loading and man-hour projections required for the BPS.

1.2.1.4. Revised Project Schedule

A. Non-Profit Entity shall, throughout the D&C Period, update the Project Schedule to reflect actual progress and status of the Work. These updates shall not amend the contractual milestones in this Agreement.

B. If the Project Schedule needs to be amended as a result of a Change Order or Compensable Delay Event, the revised and City-approved schedule shall replace the previously established Project Schedule and, henceforth, shall be the Revised Project Schedule.

1.2.1.5. Recovery Schedule

A. Whenever the Project Schedule shows any schedule activities with a completion date having 20 Days or more negative float, Non-Profit Entity shall prepare and submit to the City a Proposed Recovery Schedule. Such submittals shall include a list of all activity and resource changes required to eliminate such negative float and an accompanying narrative explaining the nature of such changes. The recovery schedule shall be a separate submittal from the Project Schedule Monthly Update (see Section 1.2.1.6), unless the City elects to waive the separate submittal upon determining that current Project Schedule is acceptable with only minor changes.

B. If the proposed schedule revisions include sequence changes, Non-Profit Entity shall provide a fragmentary network (fragnet) schedule diagram that compares the original sequence to the revised sequence.

C. After obtaining formal acceptance by the City, the approved Recovery Schedule shall replace the previously established Project Schedule and shall be the Project Schedule.

D. If Non-Profit Entity's proposed schedule revisions are not acceptable to the City, then the City's comments shall form the basis for resubmission of Non-Profit Entity's proposed recovery schedule

1.2.1.6. Project Schedule Monthly Updates

A. Non-Profit Entity shall prepare and submit to the City Project Schedule Monthly Updates to reflect actual progress and to define future activities. The last day of each monthly reporting period shall be the data date used to calculate the schedule.

B. The current Project Schedule shall be the basis for monthly updates, which shall:

1. Show activities that have started, are on-going, or have completed during the reporting period.
2. Show actual start and finish dates for activities.
3. Show remaining duration for on-going activities, with remaining duration based on updated determinations of the amount of time required to complete the work activity.
4. Modify activity relationships or otherwise re-baseline the currently established Project Schedule only as necessary to correct out-of-sequence progress for on-going activities or to accurately reflect Non-Profit Entity's plan for completing remaining Work.
5. Be accompanied by a narrative report, which shall:
    a. Identify the Project Schedule version.
    b. Provide a summary of, and reasons for, revisions and deviations (if any).
    c. Identify milestones.
    d. Include started activities for the period.
    e. Include completed activities for the period.
    f. Explain missed activity starts for the period.
    g. Explain missed activity completions for the period.
    h. Discuss critical resources.
    i. Describe the critical path.

j. Identify near-critical activities (total float less than nine Days).
k. Describe any pending Time Impact Analysis (TIA).
l. Describe Project issues encountered.
m. Identify potential changes from the original accepted Baseline Schedule (and last accepted update thereof).
n. Describe impacts to current period activities.
o. Highlight upcoming Project-related the City and Third Party activities within the next six months.

6. Include the following reported schedule data in supporting tables:

a. Critical Path.
b. Added activities.
c. Deleted activities.
d. Added predecessors.
e. Revised relationship lags.
f. Deleted predecessors.
g. Revised original durations.
h. Revised activity names.
i. Changed calendars.
j. Activities started during the period.
k. Activities completed during the period.
l. Near-critical activities (total float less than nine Days).
m. Activities scheduled but not started during the period.
n. Activities scheduled but not completed during the period. and
o. Activities started or completed in the previous period.

C. Non-Profit Entity shall submit Project Schedule Monthly Updates properly coordinated with each Monthly Progress Status Report, as defined in Section 1.2.4.1 (Monthly Progress Status Report).

D. Prior to NTP 2, Non-Profit Entity shall provide progress reporting against the Initial Project Schedule.

1.2.1.7. Submittal Schedule for D&C Submittals

A. Non-Profit Entity shall prepare and submit to the City a preliminary Submittal Schedule for the D&C Period, identifying design documents and showing dates by when all Submittals (documents, data, , samples, mock-ups, etc.) required by the Contract Documents will be submitted to the City and the appropriate AHJs. This preliminary submittal schedule shall be consistent with the required submittal dates in the Project Schedule. The required submittal dates in the finalized Submittal Schedule shall be coordinated with the Project Schedule and any updates thereafter.

1.2.1.8. Look-Ahead Activity Reports

A. As an integral part of every Weekly Coordination Meeting defined in Section 1.13 (Weekly Coordination Meetings), a one-week look-back and two-week look-ahead schedule (also called a ”Three-Week Look-ahead Report”) shall be generated from the latest evaluation of

actual progress based on each activity in the look-ahead schedule corresponding to an activity in the Project Schedule.

B. The Three-Week Look-Ahead Report shall show activities that occurred over the previous week and those necessary to meet the schedule over the ensuing two weeks. The report shall include, at a minimum, all activities planned to be performed during the look-ahead period. activities related to Project interfaces, the City-actions, and Third Party and Utility Owner coordination. and time-critical material deliveries.

C. The Three-Week Look-Ahead Report shall be a spreadsheet containing activity IDs and descriptions from the Project Schedule and include the following information: start and finish dates for these activities as they will be performed on Project Site showing the planned prosecution of the activity (with interruptions and resumptions of work), total float from the schedule current during that month, original duration, remaining duration, percent complete, and pertinent remarks as to activity status. The Three-Week Look-Ahead Report shall be submitted to the Construction Manager at least three days prior to the weekly meeting for review. The look-ahead must indicate which activities are on the critical path.

D. During each Weekly Coordination Meeting, the Three-Week Look-Ahead Report shall guide attendees' discussion and review of activities, whether planned or ongoing.

1.2.2. Schedule Requirements

A. The Project Schedule, shall comply with the Contract Documents and shall be consistent with project planning and scheduling best practices. The Project Schedule shall, at a minimum, conform to the requirements in the following subsections:

B. Include a written narrative that explains the approach for meeting all milestones and Contract Deadlines. The narrative shall include a clear description of the critical path activities from beginning to end. The narrative shall set out the schedule basis and assumptions, including determining activity durations used to develop the critical path network.

C. Include activities that meet the following minimum requirements:

1. Activity durations shall be the total number of actual days required to perform the activity.
2. Activity durations shall be based on anticipated production rates for design and preconstruction activities, labor (crafts), equipment and materials required to perform each activity on a normal workday basis.
3. Each activity shall have at minimum one predecessor and one successor (excluding the Project start and finish milestones).
4. All activity names shall be clearly and uniquely named with a description of Work readily identifiable to inspection staff. Each activity shall have a descriptive label consisting of at least one action or work function such as submit, form, place, excavate, etc.. an object such as design calculations, slab, concrete, foundation, etc.. and location such as gridline, sector, building, etc.

D. Include all major activities of the Work in sufficient detail to enable the City to monitor and evaluate design and construction progress from Financial Close through Final Acceptance.

E. Become the basis for standalone, partially delineated schedules as may be required by Third Party and Utility Owner Agreements.

F. Utilize the critical path method of network calculation, the most critical path being the longest network path through the Project having the least amount of float.

G. Utilize the precedence diagram method to establish relationships and interdependencies between the individual activities required to complete the Project, subject to the following:

   1. Total float criteria are not acceptable for identifying or representing the Critical Path; and

   2. The scheduling software shall be configured to show the longest path in any schedule calculation and graphical representation shall distinguish between the critical path and near-critical paths.

H. Ensure that activity identification numbers, textual descriptions, and codes are consistently applied and have unique descriptors for each activity.

I. Breakdown the D&C Work throughout the D&C Period into measurable performance activities, with appropriate logic ties, to show that:

   1. Overall approach to sequencing is efficient and effective;

   2. Logical relationships between activities reflect the actual intended sequence of Work;

   3. Design activities are appropriately matched to deliverables and completion of the activities, subject to the City approval of those deliverables;

   4. Construction activities are presented in a logical work breakdown structure following Best Management Practice;

   5. No open-ended activities (i.e. those activities without their predecessors and successors identified) occur other than Early Work Start, Financial Close, NTP 1, Project Start, Substantial Completion, and Final Acceptance; and

   6. No constraint dates begin or complete any activity unless particular constraint dates are specifically required in the Contract Documents or are explicitly accepted by the City.

J. Use no relationships that cannot be shown to demonstrate a true dependency.

K. Show any required City, Third Party and/or Utility Owner activities and milestones including, at a minimum, installation of City-furnished FF&E, procurement milestones (such as product delivery dates), right-of-way/right-of-entry availability, and Project elements that interface with Related Projects (see Section 1.14.2).

L. Show phasing of the Work including procurement, fabrication, delivery, installation, testing of materials and equipment, commissioning of systems, and any long-lead time orders for major or significant materials and equipment.

M. Identify all required regulatory approvals, allow reasonable durations for acquiring approvals and dates by which such approvals are needed to avert delays.

N. Incorporate the availability and unavailability of various Rights-of-Way/Rights of Entry and temporary easements necessary to facilitate field construction (“TCEs”).

O. Minimize use of leads and lags, with any leads and lags subject to the City approval.

P. Use retained logic methodology for schedule calculations.

Q. Exhibit no float sequestering or float suppression techniques, as no scheduled activity shall exhibit negatively valued total float.

R. Develop a master calendar consistent with Non-Profit Entity's approach to delivery the Work.

S. Take into consideration potential construction delay due to Adverse Weather and include, at a minimum, 17 days per year for the anticipated number of days of Adverse Weather as stipulated in Section 14.1.8.2 of the Agreement.

1.2.3. Scheduling System

A. Non-Profit Entity shall utilize the latest version of Primavera Project Management (P6, or later, for Windows) software running on a hardware system commensurate for the size and complexity of the Project. This hardware and software, working together, shall be called the "Scheduling System", and shall be capable of handling, processing, printing and plotting data to satisfy requirements set forth in the Contract Documents.

B. Non-Profit Entity shall continuously maintain the Scheduling System and the Project Schedule. Non-Profit Entity shall ensure the scheduling software maintenance agreement(s) remain current until Final Acceptance.

C. Each schedule submitted by Non-Profit Entity, or by any person or firm employed by Non-Profit Entity, shall be in native .xer format with textual schedule reports accompanying each schedule submittal in electronic ".pdf" forms.

1.2.4. Performance Reporting

1.2.4.1. Monthly Progress Status Report

A. Non-Profit Entity shall prepare and submit to the City a Monthly Progress Status Report, from NTP2 to Final Acceptance, with agreed content and formatting, that contains information on Non-Profit Entity's performance of Work during the previous calendar month. At a minimum, each such report shall contain:

Work-completed reports (and marked-up work-completed reports, as necessary) for the reporting period, description of Work planned for the next reporting period, and a summary of any critical issues or decisions affecting the Work.

1. Report shall have a subsection for each of the following that shall address progress, risks, mitigations and corrections for:
    a. Project Schedule.
    b. Quality.
    c. Safety and security.
    d. Environmental compliance and permitting.
    e. Third Party and Utility coordination.
    f. Traffic detours and maintenance of traffic.
    g. Inclusivity.
    h. Public outreach.
    i. Submittals and review process.

j. Design progress tracking, and design modifications and other changes in scope.
k. Allowances.
l. Interface management.
m. Operational readiness planning and coordination.
n. Other pertinent and timely discussion topics.

2. Description of environmental issues that arose within the Project Site (or work sites relating to the Project) and their resolution or current disposition.
3. Description of safety and security issues that arose within the Project Site (or work sites relating to the Project) and their resolution or current disposition.
4. Description of incremental and cumulative progress made towards the achievement of Disadvantaged Business Enterprises participation compared to planned levels of such Inclusivity participation.
5. Listing of Nonconforming Work, whether self-reported or identified by the City, and/or corrective actions and their resolution or current disposition.
6. Providing a copy of the latest Noncompliance Database, noting any new assessment of Noncompliance Points in the previous month, and generally reporting on the D&C requirements contained in Article 15 (Deductions and Noncompliance Points) of the Agreement.
7. For the Final Monthly Progress Report addressing the D&C Period, Non-Profit Entity shall update all information and incorporate such information into an As-Built Schedule, as defined in Section 1.2.5, for purposes of closing out the D&C Work.

1.2.5. As-Built Schedules

A. Non-Profit Entity shall prepare and submit to the City for review and comment a Final Schedule Report, which shall provide the last Revised Project Schedule, an overview of the Project Schedule process, the history of changes to the Project Schedule, resulting effects on contractual dates, if any, and any outstanding schedule issues.

1.2.6. Time Impact Analysis for Proposed Extensions of Time

A. Non-Profit Entity shall submit a detailed Time Impact Analysis (TIA) to support all requests of claims for extension to any Contract Deadline.

B. The date upon which the Relief Event or Force Majeure Event occurred shall serve as the basis for each TIA or, in the event of a proposed Change Order, the implementation date of the proposed Change Order.

C. Each TIA shall show a current status of the Work using the Project Schedule or Revised Project Schedule, as the case may be, and corresponding Performance Monitoring Report prior to the initiation of the events resulting in the claim for an extension of any Contract Deadline. The TIA shall show all affected activities together with a demonstration of actions deployed by Non-Profit Entity to mitigate any impacts to a Contract Deadline.

D. Each TIA shall include a fragmentary network schedule (most commonly called “fragnet”) demonstrating how Non-Profit Entity proposes to incorporate the quantifiable time impact into the most recent Project Schedule update prior to the initiation of events in-question. The fragnet is subject to the same requirements controlling activities in the Project Schedule, including appropriate work breakdown structure, whether existing or amended, and in cases

where extensions will affect the critical path, resource information for added scope and assignment of activity codes.

E. With regard to each fragnet relating to a Relief Event or Force Majeure Event, Non-Profit Entity shall:

1. Demonstrate that recalculation of an activity or activities duration based on quantities for the fragnet activities, as well as the scheduled activities that were affected and impacted by delay, are justified. In cases where events will affect the critical path, recalculation of activities shall include resource loading and productivity ratios.
2. Identify the predecessors to new activities demonstrating the impacts caused to successor activities.
3. Insert fragnet into the most recent Project Schedule update prior to the start date of the alleged Relief Event or Force Majeure Event.
4. Run the schedule calculations and submit the impacted Project Schedule as required by the Contract Documents. and
5. Include a narrative report describing the effects of new activities, resources and relationships to Contract milestones and the applicable Completion Date with each TIA.

F. A submitted TIA can be accepted when Non-Profit Entity proves one or more of these conditions justifiable to the City:

1. When a Change Order affects the completion date or sequence of items of the Work.
2. When the City directs a change that affects the milestone date(s) specified in the Contract or alters the length of a critical path.

G. Non-Profit Entity, or any person or firm employed by Non-Profit Entity, shall submit each TIA in .xer file format, to the City for examination, evaluation and consideration.

H. After obtaining formal acceptance by the City, Non-Profit Entity shall incorporate the accepted TIA into the next Project Schedule update. Non-Profit Entity shall incorporate, and include as an attachment to the corresponding Change Order, any TIA related to a Change involving an extension to a Contract Deadline.

1.3. SUBMITTAL MANAGEMENT

A. Each Submittal provided to the City shall include sufficient detail to demonstrate that Non-Profit Entity understands and is fully responsive to, and compliant with, the specific requirements of the Contract Documents addressed in that Submittal. Submittals shall be logically organized and clearly presented, and shall be compliant with the requirements of Article 5.1 (Submittal Review Terms and Procedures) of, and Exhibit 11 (Submittals Review Process) to, the Agreement.

B. The content of Submittals to be provided to AHJs, Third Parties, and Utility Owners for their review and/or approval shall be as required by the applicable regulations, codes, Third Party agreements, and Utility Owner agreements, consistent with the respective Project Execution Plans, as applicable.

C. Exhibit 18, Division 1 Appendix B (Initial List of Submittals) provides the minimum requirements for technical submittals during the Term. Non-Profit Entity shall expand and submit to the City the List of Technical Submittals as further defined in Exhibit 11 (Submittals Review Process) to the Agreement.

1.4. QUALITY MANAGEMENT

A. Non-Profit Entity is responsible for effectively managing quality and assuring quality results in each phase and element of the Work.

B. Non-Profit Entity's Quality Management processes and procedures shall be independent of its management and oversight of Project scope, schedule, budget, and production activities. Acting independently, Non-Profit Entity's Quality Management team shall provide status reports on non-compliance actions and results of quality reviews and audits, and documentation related to achieving major schedule milestones.

1.4.1. Project Quality Program

A. Non-Profit Entity shall document, implement, and maintain an effective Project Quality Program (PQP) that guides processes to manage, control, document, and ensure that all aspects of the Work comply with requirements of the Contract Documents. The PQP shall apply to all Work performed by Non-Profit Entity, its Contractors, Suppliers and Vendors, as applicable.

B. The PQP shall contain processes and procedures necessary to ensure complete quality assurance and quality control for the following major activity categories: design, design and constructability reviews, energy modeling and other sustainability verifications, materials, equipment, inspections, testing, construction, performance demonstration, coordination, workmanship, fabrication, and document control for on-site and off-site Work performed by Non-Profit Entity. Multiple volumes shall be compiled separately addressing Project Management, Design and Construction, and Operations and Maintenance.

C. The processes and procedures established under the PQP shall comply with ISO 9001 requirements or be in-line with best management practices and, at a minimum, the following elements:

Element 1: Management Responsibility
Element 2: Documented Quality Management System
Element 3: Design Control
Element 4: Document and Data Control
Element 5: Purchasing
Element 6: Control of Third Party Supplied Items
Element 7: Product Identification, Availability, and Traceability
Element 8: Process Control
Element 9: Inspection and Testing
Element 10: Control of Inspection, Measuring and Test Equipment
Element 11: Inspection and Test Status
Element 12: Control of Nonconforming Work
Element 13: Corrective and Preventive Action
Element 14: Control of Quality Records

Element 15: Quality Audits

Element 16: Training

D. Non-Profit Entity shall require and cause the preparation and adoption of separate, formalized quality programs by each Non-Profit Entity-Related Entity, coordinated and consistent with requirements in the PQP. The quality assurance and quality control obligations for which Non-Profit Entity is responsible shall extend to Work performed by Contractors and Subcontractors.

E. Non-Profit Entity shall comprehensively document the PQP in the Project Quality Program Plan (PQPP). Non-Profit Entity shall submit to the City for review and acceptance prior to submitting any Design Documents or commencing any field activities. Non-Profit Entity shall submit to the City all subsequent updates to the PQPP.

F. The PQPP shall include an organization chart showing names, titles, responsibilities, authority, and the interrelationship between those involved in managing and directing the PQP. Non-Profit Entity's Quality Program Manager (QPM) shall be responsible for managing and overseeing the overall program and its preparation and implementation, including updates thereof. The PQP shall establish a Quality team that is distinct and independent from Non-Profit Entity's design and construction production organizations. Members of the Quality team shall inform the City's quality oversight personnel, as appropriate, and shall report directly to the QPM who, in turn, reports directly to Non-Profit Entity's senior management team.

G. The PQPP is subject to revision, and both Non-Profit Entity and the City may identify the need for such revisions. Non-Profit Entity shall update content to reflect current circumstances and changes in conditions as the Work progresses. Non-Profit Entity shall submit any such revisions or updates no later than each anniversary of the initial submittal of the PQP. Non-Profit Entity shall then redistribute a conformed PQPP, with revisions highlighted, in accordance with the requirements herein.

H. The initial PQPP must address all D&C Work. An updated PQPP must be submitted to the City for review and acceptance

1.4.1.1. Management Responsibility

A. Non-Profit Entity shall define and document a quality policy that includes objectives for the Project and shall communicate, implement, and maintain that policy at every level of its organization.

B. Non-Profit Entity shall publish a statement of its commitment to quality and its organization's quality objectives. The stated commitment shall explain Non-Profit Entity's means to attain quality results in the completed Work, how such commitment extends to all Project staff, and a signed copy of such management commitment shall be included in the PQPP.

1.4.1.2. Documented Quality Management System

A. Non-Profit Entity shall establish, submit necessary documentation to the City, and maintain a highly documented Quality Management System (QMS) to ensure that Project-specific quality goals and objectives are satisfied. Non-Profit Entity's management and oversight of quality assurance/quality control shall be independent of Non-Profit Entity's management and oversight of design and construction production.

B. The QMS shall define the interface between Non-Profit Entity's quality organization and its design and construction organization, and shall be in writing to ensure that employees have a full understanding of how the QMS works. Non-Profit Entity shall fully document and report to the City all Nonconforming Work, as required in Section 1.4.1.9 (Control of Nonconforming Work), and Corrective Actions, as required in Section 1.4.1.10 (Corrective and Preventive Action).

C. The QMS shall contain a statement of its purpose and scope, and shall include references to appropriate codes, standards, and specifications. The QMS shall identify any inspection equipment, skills, or special quality processes needed to ensure quality performance. The QMS shall contain formats for the quality records and related documentation.

1.4.1.3. Design Control

A. Non-Profit Entity is solely responsibility to provide Design Documents in accordance with the Contract Documents and the approved PDQP, as defined in Section 1.4.2 (Non-Profit Entity Design Quality). City's review of the Design Documents is proprietary in nature and does not relieve Non-Profit Entity of the responsibility to meet all obligations and requirements of the Agreement and Authorities Having Jurisdiction.

B. During development of Design Documents and the PDQP, Non-Profit Entity shall incorporate respective designers' quality control provisions and references into the PDQP. Non-Profit Entity shall establish and maintain procedures to ensure conformance with the Contract Documents, and with applicable requirements of AHJs, Third Parties, and Utilities Owners. Non-Profit Entity shall ensure designers have a clear understanding of the applicable requirements, properly coordinate design interfaces, plan and execute design validation and conformance verification activities, and implement effective design control processes and procedures, to control changes in the design throughout the entire D&C Period.

C. Design control applies to computer programs, design tables, calculations, graphs, and any other work products used to analyze results in developing or checking proposed designs.

D. The PDQP shall include procedures on how changes in design are to be initiated, reviewed and approved, implemented, inspected and documented, shall define a process to provide effective configuration management/control, and shall identify those individuals or persons authorized to approve such changes in design. An approved PDQP must be established and followed prior to any submission of Design Documents to the City.

1.4.1.4. Product Identification, Availability, and Traceability

A. Non-Profit Entity shall establish, submit to the City, and implement documented product identification, availability and traceability procedures for identifying and controlling the provision of any items of production (such as batch, materials, parts, and components) for incorporation into the Project. Effective measures shall prevent the use of incorrect or defective items and shall ensure the use or incorporation of only correct and acceptable items. Non-Profit Entity shall submit to the City, in a complete and timely fashion, formal product identification procedures, for application from receipt through all stages of production, delivery, and installation.

1.4.1.5. Process Control

A. Special processes, including welding, nondestructive testing, and heat treatment, the results of which cannot be directly verified by subsequent inspection and testing of the product, shall be continuously monitored by Non-Profit Entity during the process to ensure required quality results in the final product.

1.4.1.6. Inspection and Testing

A. Non-Profit Entity shall plan and implement inspection and testing procedures as necessary to verify product or production quality. Inspection and testing shall follow formal procedures, with documented results, before receiving incoming products for final inspection, verification, and testing for acceptance. Testing requirements and procedures shall include references to required certifications, testing procedures, frequency and location, requirements for witnessing of tests, and where factory inspection and/or testing is necessary prior to shipping or transporting the finished product.

B. Non-Profit Entity is responsible for performing all quality assurance and quality control inspections and tests under the Contract Documents. The PQP shall address the required certifications, inspections, and tests, and the establishment of quality records, in appropriate detail.

C. Non-Profit Entity shall provide a means for identifying the inspection and test status of Work during production and installation. Only products or installed Work that has passed the required inspections and tests may be accepted.

1.4.1.7. Control of Inspection, Measuring, and Test Equipment

A. Inspection, measuring, and test equipment (including test software) necessary to perform inspection and testing shall be identified, controlled, calibrated, and maintained appropriately, to demonstrate the conformance of work to the specified requirements.

B. Non-Profit Entity shall be responsible for ensuring that all inspection, measuring, and test equipment used in the performance of the Work is appropriately identified, controlled, calibrated, maintained, and subject to periodic and regularly scheduled recalibration. Non-Profit Entity’s Quality Assurance personnel shall ensure that calibration and testing practices remain current and in compliance with the requirements of this Agreement. Non-Profit Entity shall make all related records and documentation available to the City’s Quality Assurance personnel upon request.

1.4.1.8. Inspection and Testing Status

A. Conformance or nonconformance of any Work items shall be identified through inspection and testing by suitable means. Non-Profit Entity shall ensure all Work items have passed their requisite inspections and tests and shall report such status throughout all production, installation, and servicing processes.

1.4.1.9. Control of Nonconforming Work

A. Non-Profit Entity shall submit to the City and implement procedures to prevent the use, installation, or allowance of Nonconforming Work in the Work.

B. Non-Profit Entity shall identify, document in the Noncompliance Database, and evaluate the root cause of every instance of Nonconforming Work as per Section 15.3 of the Agreement.

1.4.1.10. Corrective and Preventive Action

A. Non-Profit Entity implement the corrective actions needed to correct each instance Nonconforming Work, prevent recurrence, and analyses to detect and eliminate potential Nonconforming Work.

B. Non-Profit Entity shall verify accomplishment of corrective actions to the City's satisfaction. Non-Profit Entity shall develop and implement preventive actions to mitigate or eliminate potential Nonconforming Work or otherwise prevent occurrence/recurrence of Nonconforming Work. Such prevention includes implementing and recording changes in procedures resulting from preventive actions, corrective actions, and continual quality improvement initiatives.

1.4.1.11. Control of Quality Records

A. Non-Profit Entity shall establish, submit to the City, and implement effective procedures for organizing, maintaining, and safekeeping Quality Records, The procedures shall identify those Project-related records for safekeeping, responsibility for production and collection of such records, and responsibility for indexing, filing, storage, retrieving, and other disposition of Quality Records.

B. Quality Records shall demonstrate conformance to specific requirements and contribute to effective operation of the QMS. Non-Profit Entity shall maintain, and be able to produce records necessary to provide objective evidence of Agreement review, procedure compliance, design review, training, demonstration, certification, and complete acceptance of inspection and test results, including traceability of equipment or items used in the Work.

C. Quality Records shall be legible and shall be stored and retained in a manner that is readily retrievable and secured to prevent loss or unauthorized access.

D. Quality Records shall always be available to the City, for examination or inspection, in accordance with the Contract Documents, in which their retention periods shall be as specified, consistent with the PQP and the Contract Documents.

1.4.1.12. Quality Audits

A. Non-Profit Entity shall establish, submit to the City, and follow documented procedures for planning and implementing a comprehensive program of scheduled and unscheduled Quality Audits, the Quality Audit procedures. Quality Audits shall verify compliance with applicable requirements and ensure that all elements of the QMS are functioning effectively.

B. Quality team personnel shall conduct Quality Audits on a planned and scheduled basis, commensurate with the importance of the activities being performed, but no less frequently than every quarter throughout the D&C Period. The Quality team shall initiate Quality Audits early enough in the life of the activity to assure effective Quality Control throughout the activity's timeframe. Quality Audits shall encompass project management, supervisory and administrative functions, and performance of technical activities of the Work.

C. The results of Quality Audits shall be fully documented, recorded, and reported to those persons and firms having direct responsibility in the Work area audited. Non-Profit Entity shall immediately instigate timely corrective action of any deficiencies noted in the Quality Audit.

D. Non-Profit Entity's personnel conducting a Quality Audit shall be independent and separate from those directly responsible for performing the activity audited. Qualifying experience and credentials (such as ASQ certification) for an Auditor shall be established and documented by Non-Profit Entity, with such personnel qualification records kept on file, maintained in the Quality Records, and available to the City.

1.4.1.13. Training

A. Consistent with the provisions in Section 1.7 (Training), Non-Profit Entity shall establish, submit to the City, and follow written procedures for identifying training needs and providing training to all Quality Assurance/Quality Control personnel for activities affecting quality in the Work and in accordance with the Contract Documents.

B. Records of training and certifications shall be maintained in the Quality Records, and be available to the City, identifying certification of personnel performing specific assigned tasks. Such certification shall be based on appropriate education, training, and experience.

C. Non-Profit Entity shall document its training procedures and maintain current training records to ensure only qualified personnel are performing quality related activities and assigned tasks. Non-Profit Entity shall prepare training procedures through ongoing training efforts and the recorded accumulation of personnel experiences, including systematic reviews of personnel competence at determined levels before any deployment in new quality-related roles. Such training shall focus on improving competency and skill levels for those performing activities affecting quality in the Work.

1.4.2. Non-Profit Entity Design Quality

A. Non-Profit Entity shall prepare and submit to the City for review and acceptance a Project Design Quality Plan (PDQP) addressing Non-Profit Entity's responsibilities for performance, oversight, and verification of all Design Work. The PDQP shall tier off from the PQPP to specifically address the design process and shall be referenced in the DMP. No Design Work may commence until the City verifies that the submitted PDQP complies with the requirements of Contract Documents and is deemed acceptable to the City.

B. The Design Manager and the QPM shall administer the design management and quality oversight responsibilities for which Non-Profit Entity owes a duty of care to the City.

1.4.2.1. Design Documentation

From NTP1 until completion of Design Documents per the Proprietary Design Review process (see Section 1.8.5 of this Division 1), the Non-Profit Entity shall:

A. Submit to the City a Monthly PDQP Report for information purposes at the same time as Non-Profit Entity's Monthly Progress Status Report to, at a minimum, address:

Summary of design reviews conducted;

Engineering and design progress against the design activities in Project Schedule and as required by Section 1.8 of this Division 1;

Any design activities related to Nonconforming Work;

Any design work related to Changes or Deviations; and

Updated list of Non-Profit Entity's internal and external design submittals, for reference (as such documents are cited in the PDQP);

B. Upon completion of Design Documents per the Proprietary Design Review process (see Section 1.8.5 of this Division 1), notify Non-Profit Entity's project management and design team members, with a copy to the City, of any outstanding issues or unresolved review comments. Outstanding issues or unresolved review comments shall also be noted in the final Design Progress Tracking Report. Non-Profit Entity shall revise the final Design Progress Tracking Report to incorporate responses to the City's comments and resubmit to the City;

C. To facilitate determination of Quality Assurance sampling and testing needs, quantify key items of the Work subject to sampling and testing and submit to the City its quantity estimates, presented in measurable units, prior to commencing the relevant construction activity; and

D. Ensure that Design Documents, design submittals, and As-Built Documents conform to the BIM requirements herein and the requirements of the applicable AHJ.

1.4.2.2. Design Quality Records

A. Non-Profit Entity shall maintain an auditable record of PDQP procedures, reviews and checks. Notwithstanding the City's right to audit, an auditor independent of Non-Profit Entity's management and production teams shall be able to determine, and verify by reviewing pertinent documentation, that Non-Profit Entity is following quality procedures included in the PDQP.

B. Non-Profit Entity shall enter instances of Nonconforming Work relating to Design Work into the Noncompliance Database in accordance with Section 15.3 of the Agreement.

1.4.2.3. Design Quality Assurance

A. The QPM shall certify to Non-Profit Entity and to the City that the design process activities and Design Work products comply with the approved PDQP and other Contract Documents..

B. Performance of design quality assurance shall in no way relieve the Design Manager, EOR(s) or AOR(s), or other design firm(s), from their respective responsibilities to check and review the quality, content, and correctness of Design Work produced for the Project. Each of the responsible design firms and responsible professionals performing these checks and reviews shall document their efforts, forwarding such evidence to the Design Manager and QPM, such that notes of checks and reviews are maintained as Quality Records.

1.4.3. Non-Profit Entity Construction Quality

A. Non-Profit Entity shall prepare and submit to the City for review and acceptance a Project Construction Quality Plan (PCQP) defining the processes and approach that will be implemented to ensure compliance with the requirements herein. The PCQP shall tier off from the PQPP to specifically address the construction process. No permanent Construction Work, except for site demolition, grading, and other preparatory activities, may commence until the City verifies that the submitted PCQP complies with the requirements of Contract Documents and is deemed acceptable to the City.

1.4.3.1. Quality-in-Construction Organization

A. Non-Profit Entity shall organize a Quality-in-Construction (QIC) program to oversee, manage, certify, and perform construction related quality activities including preparation of the PCQP and managing and scheduling all quality assurance/quality control inspections, sampling, and testing of Construction Work items.

B. The Quality Program Manager shall be responsible for overall management and supervision of Non-Profit Entity’s QIC program, which duties shall include coordinating the daily schedules of the field inspectors, testers, and samplers involved in ongoing design or construction activities.

C. The PCQP shall include formal training procedures that provides Project-specific quality/safety and security orientation and clearly defines the education, previous experience, and training requirements applicable to all personnel assigned to Non-Profit Entity’s QIC organization. The training procedures shall include evaluating each candidate’s knowledge of the PQPP, QMS, PDQP, and PCQP.

D. QIC staff shall act independently from those responsible for and involved in the production of construction materials or the progress of Construction Work.

E. Non-Profit Entity shall utilize independent testing laboratories to conduct all laboratory-based and field-based testing in compliance with statutory requirements for Independent Testing Laboratory (ITL) certification and specific requirements for the City certification for applicable tests. Non-Profit Entity shall submit to the City candidate ITL credentials and the City reserves the right to reject, within reason, any candidate ITL proposed by Non-Profit Entity. Recognized ITL accreditations shall include the AASHTO Material Reference Laboratory, the Concrete Cement Reference Laboratory, the National Precast Concrete Association, the Prestressed Concrete Institute, the American Association for Laboratory Accreditation, and/or the National Voluntary Laboratory Accreditation Program, as appropriate and approved by the City.

F. Non-Profit Entity's ITL shall provide written policies and procedures to assure portable and satellite laboratories performing testing activities on the Project are capable of providing testing services in compliance with the applicable test methods. These policies and procedures shall address continual inspection and calibration of testing equipment as well as an established correlation-testing program between the accredited ITL and their portable or satellite facilities.

1.4.3.2. Construction Control

A. The PCQP shall contain procedures and policies to detect and prevent the reoccurrence of Nonconforming Work or other deficiency.

1.4.3.3. Material/Equipment Certifications

A. Non-Profit Entity shall submit a source of supply and item material/equipment types report, for the City's information, as follows:

1. Initially, within either 30 Days prior to material/equipment use or 60 Days following Financial Close, whichever is the earlier, to the extent that information is known. and
2. For materials/equipment not initially identified, or changes to an initial source provided, the actual source of supply shall be identified as soon as known, but not less than 30 Days prior to delivery of relevant materials/equipment to the Project Site.

B. Documented evidence that materials and equipment conform to requirements of the Contract Documents shall be available for the City's inspection, at the Project Site, prior to installing or using such materials and equipment. Non-Profit Entity shall maintain such evidence (the "Material and Equipment Conformance Certifications") at the location of placement or secured storage, with definitive content sufficient to identify these specific requirements and to certify compliance, such as working drawings, codes, standards, or the Technical Provisions. Substitutions of specified materials or equipment shall not occur without prior written approval by the City, notwithstanding a consenting determination of the responsible AOR or EOR. Failure to obtain prior formal approvals of a substitution will result in a finding of Nonconforming Work and the City's rejection of the unsatisfactory work containing such nonconforming material or equipment. City reserves the right to audit and review these certifying documents at any time.

C. Non-Profit Entity shall submit to the City, as soon as Non-Profit Entity receives documented evidence, a Source of Supply Certificate of Compliance, signed by both the Project Manager and CQCM, indicating that sourced materials and permanent equipment incorporated into the Work conform to the requirements of the Contract Documents.

1.4.3.4. Process Control

A. Non-Profit Entity shall establish and implement policies and procedures, as documented in the PCQP, for controlling key processes associated with construction.

B. Non-Profit Entity shall initiate Quality Check Points (QCPs) at appropriate stages of construction progress to ensure that trade Work is being performed in accordance with approved Design Documents, consistent with the PQPP and the PQCP, and satisfying the requirements of the Contract Documents and Good Industry Practice. Non-Profit Entity shall request Code-mandated structural observations and documentation of each visit by the responsible AOR or EOR (or his/her designee). Concrete pours shall routinely require a “pour card” evidencing that those inspecting the Work on behalf of the permittee and the AHJ have certified by their signature that the Work is correctly prepared and ready to receive placement of concrete.

C. Throughout the course of Construction Work, the Non-Profit Entity shall report out on quality control documentation and procedures as part of the Monthly Progress Meetings, including, at minimum, material certifications, daily inspection records, material testing results, survey results, permits, and material placement records.

1.5. EXISTING CONDITIONS

A. Non-Profit Entity shall ensure that the physical condition of existing buildings, structures, roadways, sidewalks, paths, trails, lighting and signal equipment, or other property that are to remain in place or are to be modified, are not adversely affected by the performance of the Work. Non-Profit Entity shall perform appropriate property/pre-construction surveys to document existing conditions in order to establish an adequate mapping of baseline conditions, as well as subsequent monitoring to record any variance in baseline conditions. Non-Profit Entity is solely responsible to protect in place certain property and shall repair or replace any property damage caused by construction of the Work. Non-Profit Entity shall submit to the City copies of these surveys prior to commencing any construction activity in the affected worksite location(s).

B. See Section 01 50 00 of Division 10 of the Technical Requirements.

1.6. INFORMATION MANAGEMENT

A. Non-Profit Entity shall establish and submit to the City procedures to produce and control all documentation and relevant information, the Information Management Plan (IMP), including data stored in electronic media.

B. The IMP shall specify a process for delivery of documents and information to the City, such as use of a SharePoint or central repository that is setup and managed by Non-Profit Entity.

C. Non-Profit Entity shall establish and maintain documented procedures to control the formal process for reviewing and commenting on Submittals, resolving and closing outstanding reviewer comments, and assigning approval authority.

D. At a minimum, such relevant documents shall include Release for Construction Documents (RFCDs), Current Status Documents (as defined in Section 1.6.3, Item C), and other Record Documents, including those listed in Exhibit 18, Division 1 Appendix B (Initial List of Submittals).

1.6.1. Document Management Software

A. The Non-Profit Entity shall be responsible for the procurement, implementation, management, and administration of the Document Management Software (DMS) to facilitate the exchange of all project-related information between the Non-Profit Entity, the City, and the City's appointed Consultants. The selection of the DMS shall be subject to mutual agreement between the Non-Profit Entity and the City, and shall be based on:

1. Industry best practices;
2. Suitability for the specific requirements of the Project; and
3. Alignment with the City's data governance and cybersecurity protocols.

B. The Non-Profit Entity shall provide the City and its Consultants with appropriate access rights, software licenses, and training necessary to effectively use the DMS. The DMS shall be used to capture, process, document and manage the following categories of project information, as directed by the City:

1. Submittals
2. Project Correspondence
3. Transmittals
4. Meeting minutes
5. Contract cost information
6. Contract change orders including management process and documentation
7. Project schedule (updates, percent completion information, constraints log, etc.)
8. Issues
9. Risks
10. Requests for Information (RFIs)
11. Inspection Reports
12. Photos

13. Drawings
14. Bulletins and Architect's Supplemental Instructions (ASIs)
15. Specifications
16. Non-Compliance notices
17. Closeout documentation (including punchlists)
18. Daily Reports
19. Any other Project development / delivery information, as directed by the City

C. The DMS shall include the features and functionality to support:

1. Dashboard views and reporting
2. Workflow tracking and audit trails
3. Communication and collaboration tools
4. Mobile accessibility
5. Secure document sign-off and approval workflows
6. Project directory management

D. Any additional modules required by the City shall be made active and accessible.

E. The Non-Profit Entity must allow users access to the DMS by and at the discretion of the City through a web portal for the Term of the project.

F. The Non-Profit Entity must coordinate, schedule, and provide instruction on the proper use of the DMS for all users on the Project Team. The Non-Profit Entity must provide this instruction session within ten (10) Business Days after NTP1. At the discretion of the City, the Non-Profit Entity may be required to coordinate, schedule, and provide additional instruction sessions for proper use of the DMS throughout the life of the Project.

G. The Non-Profit Entity must coordinate with the City Project Manager to identify all City Project Team members and any other required stakeholders to whom the Non-Profit Entity must provide DMS access. The Non-Profit Entity must provide DMS access to all identified team members in a timely manner.

H. All costs associated with the DMS and for providing all trainings on the proper use of the DMS are the Non-Profit Entity's sole responsibility.

1.6.2. Document Version Control

A. Non-Profit Entity shall include document version control procedures in the Information Management Plan. Document version control procedures shall be implemented to ensure that current versions of relevant documents are on file and readily available to authorized persons, upon request, and that current versions of Design Documents are available to the City at all times. Electronic document and hard copy distribution shall be controlled and follow the same protocols.

B. Non-Profit Entity shall review and approve for accuracy and adequacy all physical documents and electronic data prior to issue.

C. Effective document version controls shall ensure that:

1. Pertinent issues (and correct versions) of appropriate documents are available to Non-Profit Entity, the City, and Third Parties;
2. Invalid and/or obsolete documents are promptly removed from all points of issue or use, or otherwise quarantined against unintended use; and
3. A record of the then-current issue of the RFCD is available to be used.

1.6.3. Drawing and Engineering Data Changes

A. Non-Profit Entity shall delineate and establish its formalized workflow process for the initiation, review, and approval of changes to Design Documents prior to issuance of such design changes.

1.6.4. As-Built Documents

A. Non-Profit Entity shall prepare and submit to the City As-Built Documents that accurately and completely reflect the actual conditions and location of elements of the Work as constructed and installed, including drawings, specifications, and related documentation (such as engineering data and reports) that affirm the actual conditions and placement locations.

B. As-Built Drawings are an integral part of As-Built Documents and Non-Profit Entity shall produce As-Built Drawings in the same manner, scale and size as the original RFCD set.

C. Non-Profit Entity shall, at all times, maintain an up-to-date, marked-up set of RFCD plans, specifications, and pertinent shop drawings for the Work, including all details that vary from original depiction of the Work (“Current Status Documents”). The marked-up set of Current Status Documents shall include all formally issued revisions made after successive releases for construction.

D. Non-Profit Entity shall electronically modify the finally updated Current Status Documents to record actual construction where different from the original RFCDs..

E. Finally updated Current Status Documents shall not to be construed as official As-Built Documents until the responsible AOR or EOR has generated an updated edition of these final construction documents, each sheet labeled “As-Built Documents” and by incorporating all such markups recorded on all previous editions of RFCDs. Such As-Built Documents shall be prepared consistent with the City’s published CADD standards. The responsible AOR or EOR shall sign and seal the As-Built Documents.

F. Maintenance of Documents and Samples: Non-Profit Entity must maintain, during the progress of the Work, an accurate record of the Work as actually installed, on As-Built Drawings. Store Record/Contract samples in the field office apart from the Construction Documents used for construction. Do not use Record/As-Built Documents for construction purposes. Make documents and samples available at all times for the City Project Team.

1. Non-Profit Entity must keep accurate records of all subsurface and concealed Work, so that the As-Built Drawings contain this information in exact detail and location. As-Built Drawings must also show all connections, valves, gates, switches, cut-outs and similar operating equipment. All such details must be included in the As Built Drawings.

2. For Leadership in Energy and Environmental Design (LEED) rating, Non-Profit Entity must develop the Project's LEED scorecard and achieve certification at the required level or higher. Non-Profit Entity must submit the final version of the scorecard submitted to USGBC with other Project Record Documents for Final Acceptance.

G. Non-Profit Entity will track and verify all contractual closeout steps are completed and recorded in the DMS, including the punch list documentation.

H. Non-Profit Entity shall provide full access to the DMS for one year after Substantial Completion.

1.6.5. Maintenance of Records

The Non-Profit Entity shall comply with the requirements of Section 21.1 (Maintenance and Inspection of Records) of the Agreement, including all provisions regarding the maintenance, inspection, and retention of records.

1.7. TRAINING

A. Non-Profit Entity shall establish and maintain a plan and management procedure for identifying training needs and for providing training to all personnel performing activities affecting safety or quality in the Work. Personnel performing specific assigned tasks shall be qualified based on appropriate education, training and/or experience. Non-Profit Entity shall maintain appropriate records of training and current certifications.

B. Training shall focus on improving individual competency and skill for those performing activities that materially affect safety and quality.

C. Non-Profit Entity shall document qualification and training records in the QMS, as part of the Quality Records.

D. Non-Profit Entity shall train Project personnel in all the special Project procedures applicable to their work.

E. Non-Profit Entity shall provide Project-specific training for City personnel as required for the City personnel to manage and maintain the Infrastructure Facility . Non-Profit Entity shall coordinate with the City on the timing of training and shall notify the City of the Project specific training date(s) and time(s) at least 21 Days prior to the scheduled training session. City will designate all the City personnel who need to receive training no less than 14 Days prior to the scheduled training session, including training required for access to the Project Site or related work sites of the Project.

F. Non-Profit Entity shall ensure that all training requirements in Division 6 of Exhibit 18 (Commissioning, Testing and Training) are met.

1.8. DESIGN MANAGEMENT

1.8.1. Design Requirements

A. Non-Profit Entity shall produce Design Documents required by the Contract Documents, and as otherwise required, to complete the Project D&C Work, and to operate and maintain the Project in accordance with the requirements of the Contract Documents.

B. Non-Profit Entity shall:

1. Manage and perform Design Work pursuant to the requirements of the Contract Documents, ;
2. Manage and perform Quality Assurance and Quality Control for Design Work;
3. Manage, coordinate, and obtain necessary approvals and permits from Utility Owners, Third Parties, governmental authorities and regulatory agencies, and the City in their proprietary, not regulatory, capacity;
4. Ensure and certify that Design Documents are prepared by duly licensed design professionals working under the direct supervision of the Design Manager, AoR, or EoR;
5. Verify pertinent dimensions and other relevant existing field conditions prior to submission of any design document; and
6. Incorporate information regarding Allowances into the Design Documents and give the City time to review and comment and approve the final design pertaining to Allowance-related scope.

C. Design Documents are subject to review by the City, in their proprietary capacity, as well as Utility Owners, Third Parties, and AHJs in accordance with regulations, Governmental Approvals, and the applicable controlling documents, namely requirements set forth in Third Party Agreements, Utility Owner Agreements, Project Execution Plans, and the Contract Documents.

D. The Design Documents shall:

1. provide information customarily necessary in documents for projects of similar size, complexity, and quality; and
2. include all information required by the building trades to complete the construction of the Project, other than such details customarily developed by others during construction.

1.8.2. Integrated Design Process

A. Non-Profit Entity shall utilize an integrated process to design all elements of the Project in a synchronized, well-coordinated manner so that the Project is designed as an integrated whole and will function effectively and efficiently for its intended purposes.

B. Non-Profit Entity shall identify all requirements, including design, construction, operations and maintenance that apply to every element and component of the Project.

C. Non-Profit Entity shall provide coordinated design management services inclusive of reviews and permitting by the City, Utility Owners, Third Parties, and AHJs. Non-Profit Entity shall demonstrate to the City that, through an integrated design process and each design submission, individual elements have been designed to integrate with the Project as a whole and support the Project's overall intended purposes.

D. Non-Profit Entity shall conduct independent design checks, workshops and over-the-shoulder meetings, consistent with the requirements of Section 1.4.2 (Non-Profit Entity Design Quality) to review design packages. Non-Profit Entity shall include in these reviews those individuals responsible for due consideration of Project interfaces, configuration control, safety and security, construction, operations, maintenance, and quality issues and concerns. City reserves its right to attend such design review meetings and may participate in discussions.

1.8.3. Design Document Organization

A. Non-Profit Entity shall organize the Design Documents, arranging them into a systematic order and identifying them with alpha/numeric designations based on discipline designations, locations, and sequential numbering of sheets and pages. Non-Profit Entity shall provide appropriate design certifications by the responsible AOR(s) or EOR(s).

1.8.4. Design Exceptions and Waivers

A. On an as needed basis, the Non-Profit Entity may submit Deviation requests to the City. The City will consider any reasonable request for design exception or design waiver meeting the criteria of being a minor change to the Technical Requirements, and shall, in accordance with the stated process, either grant or reject the Deviation.

B. Deviation requests must include supporting information pertaining to the suggested change in the Technical Requirements and it's impact on the Project. Supporting information shall include current and proposed changes in the form of drawings, standards, specifications, and other Design Documents reasonably needed to evaluate the Deviation.

C. The review and approval process for requested Deviations shall conform to the requirements in Exhibit 11 of the Agreement (Submittal Review Process).

D. Non-Profit Entity shall be solely responsible for obtaining approvals from the City, Utility Owners, Third Parties, and AHJs for Deviations, as may be required.

E. Non-Profit Entity shall obtain any necessary Deviation approval before submission of any final Design Documents for a particular design package that incorporates such related design exception or waiver, and shall include such Deviation approval in its submission to the City.

1.8.5. Proprietary Design Reviews

A. Non-Profit Entity shall prepare and submit Design Documents to the City, in its proprietary capacity as owner, for review and comment according to the process described below in this Section 1.8.5 ("Design Deliverables") and required by Exhibit 11 (Submittal Review Process). These Design Deliverables are independent of any submittals required by any AHJ, Third Party and Utility Owner.

B. The Design Deliverables shall be developed to ensure that the Project is designed and presented at each stage of design as an architecturally- and functionally-integrated development, Division 3 (Design Criteria Document) and Appendix G of Division 3 (Design Criteria Paratransit), Division 4 (Supplemental Design Criteria), and Division 5 (Battery-Electric Bus Supplemental Criteria).

C. Non-Profit Entity shall include adequate time for City review of the Design Deliverables at each stage of design, following the requirements in Exhibit 11 (Submittals Review Process).

1.8.5.1. Proprietary Design Review Process

A. Non-Profit Entity shall propose a process to produce and present Design Deliverables and facilitate the documentation and resolution of City review comments, provided such process is consistent with this Agreement and Exhibit 11 (Submittals Review Process). Non-Profit Entity shall submit the proposed process to the City for review and approval before NTP 1. Non-Profit Entity is solely responsible for implementation of the approved process. Non-Profit Entity can proceed with advancing Design Documents when a resubmittal is not required under Exhibit 11 (Submittals Review Process) however, Non-Profit Entity does so at their own risk.

B. Non-Profit Entity's process shall include the following as a minimum:

1. Develop and provide deliverables to the City at stages specified below in Section 1.8.5.2 or as mutually agreed.
2. Schedule, conduct and document design review meetings at each stage to present design progress and status of Design Deliverables. Minutes from these meetings shall be distributed within a week of occurrence.

C. Develop and implement a process to capture, track status and confirm resolution or other action regarding City comments. Non-Profit Entity shall, unless otherwise mutually agreed by Non-Profit Entity and City, provide progressively developed and detailed Design Deliverables to the City at each of the following stages of design:

1. 50% Design Development (50% DD)
2. 100% Design Development (100% DD)
3. 50% Construction Documents (50% CD)
4. 90% Construction Documents (90% CD)

1.8.5.2. Design Deliverables Content

A. Design Deliverables submitted at each stage of design shall, at a minimum, must meet the requirements set forth below.

1.8.5.2.1 50% and 100% Design Development (50% DD / 100% DD)

A. In this phase Design Deliverables will include, at a minimum, a site plan, elevations and sections, together with a written project brief detailing area calculations, building systems, and specifications, to fully describe the size and character of the entire Infrastructure Facility, including the architectural, building enclosure, roofing, waterproofing, site work, landscaping, civil, structural, mechanical, process mechanical, electrical, and electrical trolley systems, IT/AV requirements materials and other elements. The 50% DD Design Deliverables will be an '*in progress*' set of Design Documents and the 100% DD Design Deliverables shall include Design Documents that generally adhere to the AIA Design Development Quality Management Checklist.

B. At a minimum the following items will be addressed for the Infrastructure Facility:

1. 1:100 scale drawings incorporating comments from the Schematic Design Phase and illustrating the design development of each of the following areas:
    a. architectural;
    b. site plan including site layout, grading, and utilities;
    c. structural;
    d. mechanical and plumbing;
    e. electrical;
    f. municipal infrastructure and storm water retention; and
    g. landscaping;
2. 1:50 plans showing all dimensions: interior elevations and reflected ceiling plans, including main component drawings that relate to the bus maintenance equipment, and IT.
3. developed exterior elevations of the buildings and major cross-sections;
4. integration of exterior spaces, vehicle access/egress (including drop-off and pick-up access to parking, etc.);
5. a full lighting layout for each floor;
6. efficient integration of major equipment for optimal operations;
7. door controls and hardware concepts/strategies (including access card systems);
8. building security strategies;
9. interior finish concepts (flooring, walls and ceiling finishes) for all spaces and key elevations including a review of standard millwork types and details;
10. development of the circulation routes and way-finding strategy including:
    a. verification of the impact of the layout of the premises on the flow of personnel and material both internal and external to the Infrastructure Facility;
    b. review of way-finding strategies from the Proposal stage and demonstration of how they are incorporated with details in the current design;
    c. room numbering plan for City use (public and staff way-finding); and
    d. signage, orientation, etc.; and
    e. provide preliminary electrical load redundancy and spare capacity calculations for all branches of power identifying loads of different types, such as individual mechanical equipment, lighting, general receptacles, equipment, communications and security equipment and elevators.

1.8.5.2.2 Construction Documents (50% CD & 90% CD)

A. During these stages the Design Documents shall describe in detail the requirements for the construction of all components, systems and equipment of the Infrastructure Facility. The Design Deliverables for 50% CD and 90% CD stages of design shall include all the requirements in this Section 1.8.5.2.2:

1. at 50% completion;
2. at 90% completion,

3. and, despite any later dates set out in the Project Schedule, in a timely way in advance of construction with sufficient detail to allow the City to understand and assess the design of the Infrastructure Facility.

B. If Non-Profit Entity intends to proceed with construction of an element of the Infrastructure Facility in advance of the completion of the design of the entire Infrastructure Facility then Non-Profit Entity will deliver the Design Deliverables for 50% CD and 90% CD for that element, coordinated with all disciplines with sufficient accompanying detail to allow the City to understand and assess the design of that element, in advance of the Design Deliverables for other elements of the Facility.

C. Regardless of how Non-Profit Entity packages or otherwise chooses to advance construction documents for certain elements of the Infrastructure Facility, Non-Profit Entity shall provide to the City, at a level of detail and documentation that the City would customarily receive or expect to receive for a facility similar to the Infrastructure Facility at 50% CD and 90% CD stages in accordance with Good Industry Practice, Design Deliverables addressing all requirements in Section 1.8.5.2.1 developed to the associated CD stage, as well as:

1. dimensioned floor plans and elevations showing all millwork, furniture and equipment as well as a roof plan showing layout, materials, and details;
2. interior elevations as necessary, for rooms and spaces, including all interior finishes, millwork, mechanical and electrical;
3. exterior elevations including openings, closure details, materials and finishes, and color boards;
4. completed site and landscaping plans;
5. room finish schedules including material finishes and color boards;
6. door hardware schedules;
7. reflected ceiling plans coordinating architectural, lighting, electrical, low-voltage, and mechanical features
8. interior finishes’
9. LEED Gold certification, including energy efficiency/sustainability and the relevant LEED project checklist and points;

D. Non-Profit Entity will only issue drawings and specifications for construction purposes based on Design Deliverables previously reviewed by the City in accordance with this Section 1.8.5.

E. This Section does not limit Non-Profit Entity’s obligation to comply with any requirements set out in the Agreement in relation to the stages and requirements for Design Work.

1.8.5.3. Design Changes

A. Non-Profit Entity is responsible for implementing and managing a comment and resolution log to track City comments. This log shall be used in design meetings and Monthly Progress Meetings to ensure Non-Profit Entity and City are clear on design progress.

B. City review and comment on Design Deliverables will primarily focus on compliance with the Technical Requirements but may also include minor refinements or clarifications that do not constitute a material change to the Technical Requirements. City review and comment on Design Deliverables will not constitute regulatory review.

C. In the case where, as a result of a City comment, a revision is required that Non-Profit Entity believes qualifies as a City Change per Article 12 of the Agreement, Non-Profit Entity shall raise the concern with the City and the parties shall, acting reasonably, determine if a City Change is required. Non-Profit Entity shall be responsible for any Change Proposal per Exhibit 9 (Change Procedures) unless the City determines, in its sole discretion, that a City Change Order is appropriate.

1.8.5.4. City Approval of Allowance-related Scope

A. City shall approve the final design of Allowance-related scope prior to any applicable order or purchase made by Non-Profit Entity or City.

1.8.6. Release for Construction Documents

A. Non-Profit Entity shall use Release for Construction Documents (RFCDs) to construct the Project. RFCDs shall include, as applicable, plan sheets, specifications, shop drawings, working drawings, and other pertinent information. Non-Profit Entity shall only use a particular RFCD for construction after all previous comments related to the design elements, whether or not contained or depicted in the subject Submittal, have been correctly resolved and closed, and having obtained appropriate AHJ approvals and permits.

B. Prior to delivering any RFCD, either to the City or to any of Non-Profit Entity's Contractors, the contents of the RFCD shall be individually signed and sealed by the responsible licensed design professional under the laws of the State of California for the specific content included in the documents. The certifying AOR(s) or EOR(s) shall affix their signature and seal upon the title sheet, that is, on the first cover sheet, and every sheet in a set of several plan sheets per design discipline, on the title sheet and first page of calculations or written reports, and the first page of every separate specification section.

C. Non-Profit Entity shall not commence Construction Work prior to approval from the appropriate AHJ's.

D. Non-Profit Entity shall diligently track subsequent design changes and, consequently, drawing revisions by keeping a detailed log and maintaining record copies of Current Status Documents defined in Section 1.6 (Record Documents), which reproduced copies and log shall be available to the City at all times.

1.9. SUSTAINABILITY

1.9.1. Sustainability Management Plan

A. Non-Profit Entity shall prepare and submit to the City a Sustainability Management Plan that details how it will achieve the sustainability requirements of the Agreement.

B. The Project, and all facilities therein, shall comply with the current San Francisco Environmental Code, including but not limited to Chapter 7, Green Building Requirements for City Buildings, and including LEED Gold certification.

C. The Sustainability Management Plan shall include, at a minimum:

1. Description of the Non-Profit Entity's green building strategies that support achievement of the stated performance objectives in the Project LEED scorecard, GS6 form, and the Project design energy model;
2. A preliminary Project LEED scorecard, to be updated at each subsequent Design Deliverable;
3. A preliminary Project GS6 form, to be updated at each subsequent Design Deliverable;
4. Preliminary Project energy model results, to be updated at each subsequent Design Deliverable; and
5. A preliminary plan to meet Cal Green mandatory requirements, to be updated at each subsequent Design Deliverable.

1.9.2. Sustainability through Integrated Design Process

A. Non-Profit Entity shall follow an integrated design process, incorporating industry leading conservation practices for energy, water and materials, to optimize design decisions relative to sustainability.

B. Non-Profit Entity shall engage the major design disciplines, including planning, architecture, structural engineering, landscape design, mechanical, electrical, plumbing, and fire protection as well as other applicable specializations to collaborate on accomplishing sustainability measures.

1.10. BUILDING INFORMATION MODELING

A. Non-Profit Entity shall utilize building information modeling (BIM) techniques as part of the delivery of the D&C Work. Non-Profit Entity shall maximize object intelligence and ensure easy integration with other components of the facilities with which the Project will interface or those facilities adjacent to the Project.

1.10.1. BIM Roles and Responsibilities

1.10.1.1. The City Coordination

A. Non-Profit Entity's BIM Models shall be in accordance with the BIM Project Execution Plan (PxP), as defined in Section 1.10.2 (BIM Project Execution Plan). All models must be compatible with the version of Revit-based applications in use by the City at the Setting Date.

B. Non-Profit Entity shall provide, for quality assurance purposes, access by the City to the Project's model database storage.

1.10.1.2. Non-Profit Entity BIM Responsibilities

A. Non-Profit Entity shall assume the following BIM roles and responsibilities:

Develop Project's BIM PxP describing the BIM implementation approach to be followed by Non-Profit Entity's BIM team during all Project phases;

1. Produce 3-dimensional (3D) design models of the major Project elements to an appropriate Level of Development (LOD) and as defined in the approved BIM PxP;
2. Perform BIM activities as defined in the approved BIM Project Execution Plan (BIM PxP);
3. Generate properly formatted 2-dimensional plan sheets (drawings) from the finalized 3D design model;
4. Update 3D model as construction progresses and provide LOD 350 As-Designed model at Final Acceptance.

1.10.1.3. BIM Manager

A. Non-Profit Entity shall appoint, as needed, a BIM Manager to manage and oversee the implementation of the program- and/or Project-level BIM program. The BIM Manager serves as the Project Teams' point-of-contact on matters including, but not limited to, compliance with BIM PxP, data exchange, shared coordinates, and multidisciplinary design coordination. The BIM Manager's role and responsibilities include:

Ensuring that models are geospatially located and are consistent with the City's geospatial coordinate system;

1. Ensuring that all Design team members are delivering and updating their respective information models according to the currently accepted Project Schedule version;
2. Ensuring that submitted building information models comply with all requirements as defined in the applicable controlling documents;
3. Reviewing integrated design model for trade coordination purposes and perform clash detection;

4. Providing design coordination and constructability feedback to all disciplines regarding their uploaded information;
5. Facilitating design and trade coordination meetings; and
6. Serving as point-of-contact for BIM coordination with the City.

1.10.2. BIM Project Execution Plan

A. Non-Profit Entity shall prepare and submit to the City a BIM Project Execution Plan (BIM PxP) and shall include master information and data management, and assignment of individual roles and responsibilities for well-coordinated model generation and data integration. The BIM PxP shall set forth the processes and requirements for progressive development of an integrated BIM 3Dmodel for the Project.

B. The BIM PxP shall describe the Non-Profit Entity's BIM-enabled workflows and systems to successfully deliver the Project, principally as a Level-2 BIM and in accordance with the BIM requirements in this Section 1.10.

C. At a minimum, the BIM PxP shall describe:

1. BIM requirements and processes;
2. Methods and protocols / standards;
3. Schedule for progressive development of the BIM model according to the Project's anticipated development;
4. Supporting software requirements; and
5. Provision of all as-designed models upon Final Acceptance

D. The BIM PxP shall be consistent with and reference, as applicable, the relevant design review, project management, and or quality management processes and requirements set forth in this Division 1.

E. The BIM PxP shall include a section that describes how the Non-Profit Entity will work with the City to develop the Owner's Information Requirements (OIR), including workshops and a BIM strategy for the Project. At a minimum, the OIR shall include:

1. **BIM objectives**: the BIM objectives for the Project, which shall align with this Section 1.10 and the DMP;
2. BIM uses: the application of BIM methodologies and tools the Non-Profit Entity and City will use to achieve the BIM objectives;
3. Level of detail: the types of information and level of detail used to specify the datasets that the model entities shall contain, and the depth of such information. The level of detail refers to the depth of geometric and non-geometric information for each dataset ("level of detail");
4. BIM deliverables: any document or information developed by the Non-Profit Entity that is necessary for the creation of the BIM models and the products resulting from the implementation of BIM tools and processes—at a minimum, these BIM deliverables shall include the BIM PxP, the BIM models, and other supporting documents;

5. Collaboration strategy: the strategy for the City and Non-Profit Entity to collaborate within the BIM environment, which shall incorporate known methods for management and information exchanges throughout the lifecycle Project. At a minimum, the collaboration strategy shall describe how the City and the Non-Profit Entity will access, review, and approve information throughout the lifecycle of the Project; the collaboration strategy shall address the common data environment(s) ("CDE(s)") that the Non-Profit Entity will deploy to achieve the BIM objectives and the collaboration strategy;
6. Model structure / organization to share structured, unambiguous information as part of the BIM environment: the strategy for the City and the Non-Profit Entity to agree on the minimum standardization requirements to guarantee the availability and quality of information throughout the lifecycle of the Project—examples of requirements for which Non-Profit Entity must obtain City's mutual agreement upfront (before developing the BIM) include the BIM units, naming, and model sizes; and

1.10.3. BIM Data Specifications

A. Non-Profit Entity shall utilize the ASTM UNIFORMAT II Classification System and the OmniClass Construction Classification System (OCCS), or equivalent.

1.10.4. Model Ownership

A. Non-Profit Entity shall turn over to the City the finalized BIM model within 30 Days after the City's Final Acceptance of the Infrastructure Facility.

1.11. CONSTRUCTION MANAGEMENT

1.11.1. Construction Safety

A. Non-Profit Entity shall be solely and fully responsible for the health and safety of persons during the performance of the Work as specified in Division 10 of the Technical Requirements.

1.11.2. Construction Security

1.11.2.1. Overview

A. Non-Profit Entity shall secure the Project Site and maintain it in a secure manner at all times. Security of the Project Site, equipment, construction materials and all other items contained on the Project Site shall be Non-Profit Entity's sole responsibility at all times. Non-Profit Entity shall be solely responsible for all damage and the restoration of damaged property resulting from illegal trespass or unauthorized entry.

1.11.2.2. Project Site Security Plan

A. Non-Profit Entity shall develop, submit to the City, and maintain a Project-specific Site Security Plan (SSP). The document shall define the oversight management program, team organization, and operating strategy to provide and maintain work site security. The SSP shall define the personnel responsible for developing and implementing enhanced security work practices. The SSP requirements shall be strictly enforced by Non-Profit Entity's field-based security personnel.

1.11.2.3. SSP Content

A. The SSP shall be organized into indexed sections containing, at minimum, the following information:

1. Table of contents.
1. Intent and purpose policy statement with approving official's name and signature.
2. Sensitive security information.
3. Project security organization chart.
4. References.
5. Emergency action plan and personnel contact information.
6. Security risk analysis of Project Site, including crime data for proximity areas of Project Site.
7. Work zone/site diagram of construction site boundaries
8. Project Site working hours.
9. Project Site access control.
10. Procedures for controlling delivery vehicles.
11. Physical security, where provided, including at a minimum:
    a. Perimeter, including fencing and lighting.
    b. Project site signage, including language to deter trespassers. and

c. On-site and boundary lighting.

12. Equipment security (inventory, controls).
13. Incident reporting.
14. Evacuation plan, route, and rally points.
15. Police department protocols.
16. Explosives handling, storage and transport policy.
17. Trash / recycling removal.
18. Trailers and temporary buildings.
19. Storage containers.
20. Motorized equipment security, including fuel tanks, fuel storage, and batteries.
21. Surveillance, where provided, to include video surveillance and security guard service.
22. Security awareness training.
23. Security progress reporting.
24. Project site audits, reporting and follow-up. and
25. Graffiti and vandalism control.

B. The SSP shall be applicable to all personnel, visitors, guests, delivery personnel, and Contractors engaged by Non-Profit Entity on the Project.

C. The SSP shall comply with applicable Federal, State and local laws, regulations, codes and requirements.

1.11.2.4. Security Requirements

A. Non-Profit Entity shall manage and maintain the secure perimeter of the construction site inclusive of temporary office facilities pursuant to the approved SSP.

B. Non-Profit Entity shall prepare and update a Personnel Site Access Roster annotated with time/location and/or particular personnel restrictions. The Personnel Site Access Roster shall be updated when changes in personnel having restricted site access occur. Non-Profit Entity shall submit the Personnel Site Access Roster within 24 hours after receiving a written request from the City.

C. The City personnel generally shall, at all times but subject to Project-specific safety and security requirements, have reasonable access to the Project construction site, to be exercised at the City's discretion.

1.11.2.5. Coordination Requirements

A. Non-Profit Entity shall coordinate Emergency services protocols and procedures, and provide accurate and current personnel contact information sheets. Non-Profit Entity shall provide and maintain similar information with respect to all appropriate agencies and Utility Owners to ensure:

1. Provisions for documented procedures in response to emergencies, incident reports, and assistance calls.

2. Appropriate patrol of environment external to the Project Site, including storage and laydown yards. and
3. Provision of criminal investigative support.

B. In the event of a security incident, Non-Profit Entity shall contact Emergency services for immediate response and then promptly inform the City, followed by appropriately describing and documenting the incident in a written report.

1.11.2.6. Security Identification

A. Non-Profit Entity's security personnel shall at all times when on duty, carry and clearly display a visible photo ID badge identifying them as such.

B. Non-Profit Entity's field-based personnel shall be obligated to report immediately any suspicious activity and unknown or unidentified individual(s) to the designated Site Security Supervisor when observed within or around the context of secured construction worksite perimeter.

1.11.3. Maintenance of Traffic and Work Restrictions

A. Non-Profit Entity shall organize its construction activities to ensure that the surrounding community function with minimal disruption or inconvenience to the public, whether pedestrians or motorists. Close coordination with the City and other Stakeholders shall be provided at all times.

B. Non-Profit Entity shall implement controls to ensure transportation principles and standards governing the design, application, and maintenance of the various types of traffic control measures and associated devices required for street construction and maintenance of traffic work are utilized. These principles and standards shall promote safe and expeditious movement of the public through construction and maintenance zones, to ensure the safety of workers performing these activities. Minimum standards of application shall include controlling traffic moving through Work areas, including traffic devices, markings, barricades, channelizing, and hand-signaling devices.

C. Construction within any public right-of-way shall conform to the safety standards and operating guidelines promulgated by the "Regulations for Working in San Francisco Streets (Blue Book)" by SFMTA, latest edition.

D. Non-Profit Entity shall coordinate the Work such that it does not prevent pedestrians from entering operating businesses.

E. Non-Profit Entity shall coordinate the Work such that any time that the Work occupies the sidewalk along any block, the Non-Profit Entity shall coordinate with the businesses that are located on or require access through occupied area to maintain daily delivery access and access to garbage/recycling removal services. If the Non-Profit Entity's activities prevent a business from placing its garbage or recycling on the curb for pickup, Non-Profit Entity shall at its expense assist the business with handling and transport of garbage and recycling refuse to nearby designated garbage/recycling collection locations.

F. See Division 10, Section 01 35 50 (Additional Environmental Procedures), Sections 2.5 and 2.6, for additional instructions and requirements related to minimizing disruptions of pedestrians, bicyclists, transit vehicles, and emergency vehicles.

1.11.3.1. Transportation Management Plan

A. Prior to construction, Non-Profit Entity shall prepare and submit to the City a Transportation Management Plan (TMP) describing how safe traffic operations will be managed and maintained during each phase of construction and in every work zone of the Project.

B. All traffic control measures shall be sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the Project. The measures will also, at a minimum, be consistent with the requirements of the San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Traffic control measures may include but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. Any temporary rerouting of transit vehicles or relocation of transit facilities shall be coordinated with SFTMA Muni Operations.

C. At a minimum, the TMP shall address traffic management requirements in Division 10 of these Technical Requirements and include the following items:

   Processes to produce Maintenance of Traffic (MOT) plans, including development, dissemination, implementation, monitoring, refinement, and maintenance of MOT plans.

   1. Procedures to plan, schedule, and coordinate construction activities to reduce disruptions to vehicular and pedestrian movements in the vicinity of the Project.
   2. Procedures to coordinate with Emergency services, including local enforcement agencies and first responders for the City of San Francisco Police and Fire Departments as appropriate, including preparation of an Emergency Services Plan outlining how Emergency services access will be maintained at all times and conditions regularly communicated to the proper authorities.
   3. Procedures to identify and incorporate the needs of various Utility Owners, governmental entities, local officials, business owners, and other Third Parties in the Project areas.
   4. Procedures for obtaining acceptance of detours, road and lane closures and other traffic pattern modifications from SFMTA, and implementing and maintaining those modifications.
   5. Procedures for maintenance and replacement of traffic control devices, including pavement markings and traffic barriers.
   6. Procedures to coordinate with SFMTA routes to provide temporary system compatibility, establish responsibilities for temporary signal installation, maintenance, operation and removal, and coordinate traffic signal timing with local signal networks.
   7. Procedures and process for the establishment of haul routes and the safe ingress and egress of construction vehicles in the designated work zones, including a full description of the haul route to and from any staging area to construction and/or disposal sites.
   8. Procedures to modify plans as needed to adapt to current Project circumstances including a contingency plan to alleviate unreasonable construction-related back-ups that can be implemented immediately upon notification from the City.

9. Procedures to communicate TMP information to Project public information personnel and notify the public of reportable MOT issues.
10. Descriptions of contact methods, personnel available, and response times for any deficiencies or critical conditions requiring special attention during off-work hours.
11. Procedures for coordinating with affected neighboring property owners and all businesses directly adjacent to the construction work-zones to address minimize impacts to access. and

1.11.3.2. MOT Design Requirements

1.11.3.2.1 Traffic Control Plan

A. Non-Profit Entity shall follow procedures set out in the TMP and the SFMTA Blue Book, latest edition, to develop and submit to the City detailed Traffic Control Plans (TCPs), which provide for all construction phases, as well as all required traffic switching procedures. Non-Profit Entity is solely responsible for the installation, maintenance, and removal of all elements of the TCPs.

B. Non-Profit Entity shall produce a TCP for each phase of Work, if required, that affects traffic and involves traffic control details, and shall coordinate with the City on developing the TCP. Non-Profit Entity is responsible for obtaining all necessary permits from AHJs to implement the plans.

C. The TCP shall include details for all detours, traffic control devices, striping, and signage applicable to each phase of construction. Information included in the TCPs shall be of sufficient detail to allow verification of design criteria and safety requirements including typical sections, alignment, striping layout, and pavement drop off conditions. TCPs shall clearly designate all temporary reductions in speed limits. Changes to posted speed limits will not be allowed unless specific prior approval is granted by SFMTA in its regulatory capacity.

   1. Non-Profit Entity shall maintain signing continuity on all active roadways within or intersecting the Project at all times.

D. Throughout the D&C Period and to the extent possible, Non-Profit Entity shall keep all streets and intersections open to traffic by constructing work in systematic stages or segments. Non-Profit Entity shall, to the extent possible, maintain access to all streets adjacent to construction activity and shall provide for ingress and egress to public and private properties at all times. Non-Profit Entity shall assist in preparing and broadcasting public information notices, in accordance with Section 1.15. (Communications and Public Information), well in advance of the implementation of lane closures or traffic detours.

1.11.3.3. Control of Pedestrian Activities

A. Non-Profit Entity is required to provide safe passage of pedestrians in a manner that provides for safety and convenience to the public. Pedestrian and circulation plans describing any restrictions, closures and alternative routings to those properties adjacent to the Work area shall be included in the TCP’s for all construction activities that affect pedestrian movements.

B. Pedestrian and circulation plans shall comply with the following standards:

1. All access to and egress from public facilities must be serviced with pedestrian accommodations.
2. Provisions of appropriate walkways, crosswalks, signage and signalization, pushbutton “Walk/Don’t Walk” signals, and other devices are required during all stages of construction. (Non-Profit Entity may be required to relocate said facilities or to cover facilities and provide temporary facilities of a similar type and magnitude.)
3. Where pedestrian activities are located parallel to and in the vicinity of any vehicular roadway or travel path without a curb section, continuous concrete barrier protection and its related crash attenuators must be provided. Concrete barrier or construction fencing shall be continuously used to segregate pedestrians from construction areas.
4. Pedestrian detour routes must comply with accessibility law.

1.11.3.4. Construction Requirements

A. Non-Profit Entity shall maintain safe traffic operations and control at all times. Non-Profit Entity shall keep a copy of the approved permit, digital or hard copy, readily available on-site. If at any time the City or other jurisdictional agency’s public safety officer determines that the traffic control is not safe to the public or does not meet the intent of the TMP or any specific traffic control plan, Non-Profit Entity shall take immediate steps to correct the situation as directed. Non-Profit Entity’s construction operations shall maintain access for the City personnel, and Emergency Services vehicles to areas requiring access at all times.

B. At the end of each work-shift during which lane(s) have been closed, components of the traffic control system (except portable delineators placed along open trenches or excavations adjacent to the traveled way) shall be removed from the traveled way. Traffic signs and signal equipment must be removed or covered when not in use.

All traffic control devices shall be kept in their proper position at all times and shall be repaired, replaced or cleaned as necessary to preserve their appearance and continuity as manufactured.

C. Non-Profit Entity shall provide portable changeable message signs, flashing arrow boards, and cones/barricades as field conditions warrant..

D. All temporary traffic control devices shall be removed following completion of Work it was installed for and the normal operation of permanent traffic control devices shall be restored and/or provided by Non-Profit Entity.

E. Any damage to traffic signal detector loops, conduits, interconnect, or fiber optic cable shall be immediately reported to the City or its authorized representative, and repaired immediately by Non-Profit Entity at Non-Profit Entity’s sole expense. Non-Profit Entity shall take immediate, necessary steps to rectify the situation, including providing a flag person, temporary stop signs, or other devices as the City may direct.

F. Haul Routes shall be submitted to and are subject to approval by SFMTA and other AHJs as required.

1.11.3.4.1 Detours

A. Non-Profit Entity shall provide motorists with guidance on diverting around the construction, detouring around specific construction sites, and traveling through the construction areas. This shall include the installation and maintenance of temporary regional signs to divert traffic to alternate routes, as appropriate. Motorist guidance to and along detour routes shall be provided, together with regional guidance.

B. Temporary pavement placed for detour purposes shall be removed prior to Final Acceptance. Existing pavements used as detour or haul roads shall be restored to their original condition.

1.11.3.4.2 Pavement Markings

A. Non-Profit Entity shall completely remove existing pavement markings that conflict with temporary or permanent pavement markings. These pavement markings shall be removed by any method that does not materially damage the surface or texture of the pavement. Pavement marking removal by over-painting is prohibited.

1.11.3.4.3 Reinstatement of Utility Cuts

A. After installation of drainage structures, storm sewers, or any other public or private utility facility by open cut beneath existing pavements carrying traffic during construction, the pavement shall be restored by Non-Profit Entity to the satisfaction of SFMTA to provide a normal satisfactory riding surface.

1.11.3.4.4 Hauling Equipment

A. Non-Profit Entity shall keep traveled surfaces used in its hauling operations clear and free of dirt or other debris that would hinder the safe operation of roadway traffic. Rubber-tired equipment shall be used for moving dirt or other materials along or across paved surfaces.

B. Where Non-Profit Entity moves any equipment not licensed for operation on public highways on or across any pavement Non-Profit Entity shall protect the pavement from all damage caused by such movement. Any damage caused by Non-Profit Entity's operations shall be repaired at Non-Profit Entity's sole expense.

1.11.3.4.5 Final Clean-Up

A. Non-Profit Entity shall clear and remove from the Project Site all surplus and discarded materials and debris of every kind and leave the entire work zone in a smooth and neat condition after completing any construction process.

1.11.3.4.6 Traffic Control Plan Field Redlines

A. In the event that approved traffic control plans require modification during their implementation, due to unexpected field conditions, Non-Profit Entity shall implement such modifications on a temporary basis.

B. Non-Profit Entity shall review such modifications with the EOR and generate a design solution for the remainder of the construction stage in the form of a redline Traffic Control Plan, stamped by the EOR and submitted to SFMTA within 72 hours of implementing the temporary field modification.

C. Any related plans, including temporary traffic signal plans and temporary street lighting plans shall be similarly updated and submitted to SFMTA for information.

1.11.4. Temporary Facilities and Utilities

1.11.4.1. Temporary Utilities

A. Non-Profit Entity shall provide all temporary utility systems, services, connections and disconnections necessary to perform the Work, including maintenance of utility service to adjacent properties and utility service necessary for the City staff to perform Project-related functions.

B. Non-Profit Entity shall obtain and pay for any required temporary services and associated permits.

C. Non-Profit Entity shall provide to the City temporary utility designs and engineered drawings as necessary per the specific requirements of the AHJ and respective Utility Owner. Non-Profit Entity shall coordinate with all parties as necessary to provide temporary utilities, subject to the restrictions of Third Party and Owner Utility agreements.

D. Upon disconnection of temporary systems, Non-Profit Entity shall restore to original condition all disturbed areas and facilities (street improvements) not otherwise being improved as part of the Project.

1.11.4.2. Project Management Office Requirements

A. Non-Profit Entity shall establish a local area Project Management Office from which to manage, direct and administer the design and construction of the Project.

B. The City's personnel will co-locate with Non-Profit Entity and its Contractors at the on-site construction management office for the duration of the D&C Period. Non-Profit Entity shall provide temporary facilities for the City's needs in accordance with the Contract Documents.

C. Non-Profit Entity shall obtain and pay for any required Regulatory Approvals, including temporary facility permits.

1.11.4.3. Construction Management Offices Requirements

A. Non-Profit Entity shall provide and manage fully outfitted, furnished and sufficiently networked office spaces for accommodating both Non-Profit Entity's and the City's personnel including, at a minimum, the provision of required insurance, lease agreements, utility connections, utility service, internet service, maintenance, janitorial, security and other services necessary to provide lighting, heating, power, water and sanitation in these required temporary facilities. All office furnishings shall be maintained in good working order.

B. Non-Profit Entity shall provide temporary, offsite parking facilities, sufficient for the number of individuals assigned to this temporary facility plus accommodation for visitor parking.

C. Fixtures, equipment, systems, and appurtenances furnished by Non-Profit Entity for use by the City shall remain intact and be returned to Non-Profit Entity as Non-Profit Entity's property no more than 45 Days after Final Acceptance.

D. Heating and air conditioning of sufficient capacity and zoning shall be provided to adequately control room temperatures at all times.

E. Non-Profit Entity shall provide integral sanitary facilities within these temporary offices exclusively for the use of office personnel. Such sanitary facilities shall include a flushing water closet and lavatory with hot and cold potable water. Non-Profit Entity shall obtain sanitary sewer permit and provide connection to public sanitary sewer if the permitting agency so requires. Each restroom shall be suitably equipped with liquid soap dispensers, toilet paper dispensers, toilet seat cover dispenser, paper towel dispensers, paper waste receptacles, industrial-grade first aid kits, all furnished with continuous, ongoing supply of associated consumable restroom and janitorial products. Separate restrooms shall be provided for each gender. Non-Profit Entity shall provide cleaning of the restrooms and employee break room wet counters weekly.

F. Non-Profit Entity shall provide kitchen facilities in these temporary offices, including microwave oven, refrigerators that produce ice cubes, a source of purified cold and hot drinking water, coffee / tea machines, and paper towels, cups and plates.

G. The space for the City shall be furnished and equipped in good and serviceable condition, at least of the same quality as Non-Profit Entity's counterpart staff space.

H. Non-Profit Entity shall be responsible for disposal or removal of all the City office facilities and any Project Site restoration following closure of the offices.

I. Non-Profit Entity shall provide a temporary facility at the Project Site for housing Construction Management Offices, as follows:

   1. Non-Profit Entity’s space may be as determined by Non-Profit Entity. Jointly shared space and space for the City’s exclusive use shall include elements defined in **Table 1** (CM Office Space Requirements for the City). The quantity and size of spaces shall be coordinated and determined with the City.
   2. Non-Profit Entity shall ensure City has continuous access to site and office facility via keys or card keys/fobs.
   3. Separate, secured, storage suitable for the City-provided portable equipment.
   4. Parking, sufficient for City Project vehicles and visitor spaces dedicated to the City, quantity to be discussed and established with the City.
   5. At least one conference room large enough to facilitate all-hands meetings with Non-Profit Entity and the City.

J. Non-Profit Entity shall provide to the City Construction Management Office site and floor plans prior to planned occupancy.

Table 1: CM OFFICE SPACE REQUIREMENTS FOR THE CITY

Space	Quantity	Minimum Size (SF)
Workstation Cubicle (City)	6	100 per workstation
Conference Room (Shared)	1	500

K. The City shall have ability to commence occupancy of the temporary facilities at the same time as the Non-Profit Entity and continue occupation without interruption until Substantial Completion

1.11.4.4. Office Systems and Equipment

A. Non-Profit Entity shall provide the City with continuous access to and shall maintain, at a minimum, trouble-free operation of the following systems and equipment at this temporary office:

Electrical infrastructure adequate for office use.

1. High-speed internet connection, hard wired and wireless network. DSL Internet Service, 50 Mbps minimum and wireless router.
2. 4-drawer steel file case with lock and key.
3. 4’x4’x1’ deep metal bookcase.
4. Waste paper basket
5. Clothes hangers
6. Network connected laser printer, dry copying type using bond paper - scanner capable; able to copy 8½ x 11 and 11 x 17 size paper at 45 page per minute (ppm); features to include color, b&w, auto doc feeder, duplex copying/printing, collate, staple, hole punch and sort options.
7. Monitors and cables.
8. HDTV with wall mounting bracket and white board in each conference room.
9. Consumables such as paper, pads, sticky notes, writing utensils, erasers, rulers, staplers, paper and binder clips etc. as needed and requested by the City.

1.11.5. Construction of Laydown, Staging, and Casting Yard

A. Non-Profit Entity shall utilize the Project Site and provide any additional support areas required.

1.11.6. Project Site Cleaning

1.11.6.1 Waste Material

A. Non-Profit Entity shall, at all times, maintain the Project Site in a clean and neat condition, clear and free of waste, trash, rubbish and debris. Waste management shall comply with requirements herein as well as those in Division 10 of the Technical Requirements.

B. No construction waste material shall accumulate or remain on the Project Site or adjoining streets and public right-of-way, and any remnants or traces must be removed immediately, without additional cost to the City. Non-Profit Entity shall clean and continue to keep clean all roadways, sidewalks, and other public areas in which the Work is to be done. Such adjoining areas shall be protected against unauthorized dumping of waste material by others, which is Non-Profit Entity’s sole responsibility to remove, and shall be left in a clean and neat condition.

C. Concrete mixing trucks shall not be washed on local City streets, nor shall the waste material from the washing out of concrete mixing trucks and grouting operations be discharged to any sewer manhole, catch basin, sewer or storm drain. Non-Profit Entity is solely responsible to prevent waste or debris from entering into storm or sanitary systems.

D. All trash, litter, vegetation material, recycling, and similar waste generated in the course of construction shall be placed into rubbish containers or trash/recycling receptacles located in each construction work-zone.

E. All construction work-zones shall be protected against unauthorized dumping of waste materials by others, which is Non-Profit Entity's sole responsibility to remove, and shall be left in a clean and neat condition.

F. Any refuse or debris that spills or blows from a rubbish container or trash receptacle shall be cleaned up immediately.

1.11.6.2 Public Roadway Cleaning

A. Non-Profit Entity shall prevent dirt and debris transfer from the leaving the Project Site and from spilling onto public roadways, sidewalks, paths, and trails adjoining the Project Site. Maintenance of the work area and debris/spill control shall comply with the requirements in Division 10 of the Technical Requirements. Dirt and debris transferred to paved surfaces shall be cleaned up immediately.

B. All public roadways and walkways with adjacency and near adjacency to the Project, including public ways and roadway approaches within the Project Site limits, shall be cleaned daily. All haul routes shall be cleaned as necessary.

1.11.7. Final Cleaning

A. Substantial Completion by the City shall be withheld until the Non-Profit Entity has satisfactorily complied with the requirements herein for final cleanup of the project site.

B. Should the City elect to partially occupy or use portions of the Work prior to Completion, perform final cleaning for those portions of the Work prior to their being so occupied or used.

C. Comply with applicable regulatory requirements during cleaning and disposal operations. Use cleaning materials which will not create hazards to health or property or cause damage to products or Work.

D. Use only cleaning materials and methods which are compatible with the surface being cleaned, as recommended by the manufacturer of the products to be cleaned.

E. Completely clean the work site including the adjacent sidewalks and street from property line to property line.

F. Schedule final cleaning operations to prevent resulting dust and other contaminants from adhering to wet or newly finished surfaces and to enable the City to accept a completely clean work.

1.11.8. City Access Period Make-Ready Requirements

A. Related to Section 7.13.4 of the Agreement, Non-Profit Entity shall prepare the IT/Comms Site prior to the City Access Period so that the IT/Comms Site is:

1. Thoroughly cleaned and dust free;
2. All molding and finish work is completed;
3. Final coat of paint is applied and dry; and
4. All power and data cabling is installed and functioning.

B. For the MDF and all IDFs, Non-Profit Entity shall ensure the following additional conditions are met prior to the City Access Period:

1. Spaces are conditioned with required temperature controls; and
2. Door installed is lockable.

1.12. COORDINATION WITH THIRD PARTIES

1.12.1. Third Party Coordination

A. Except as otherwise prescribed in the Contract Documents, Non-Profit Entity shall coordinate directly with each Third Party entity to identify, collaborate and resolve all items and issues that impact the Project. Non-Profit Entity shall invite the City's designated representative to participate in Third Party coordination efforts, which includes responsibility to arrange meetings, obtain permits and approvals from AHJs, and to design, purchase / acquire equipment and materials, construction and inspection. City and/or the Third Party (agency or utility) will be inspecting and/or providing oversight of Non-Profit Entity's construction and resulting compliance with quality assurance/quality control requirements, accepted implementation plans and testing.

B. Non-Profit Entity shall coordinate and resolve all Third-Party items and issues throughout the D&C Period of this Agreement, whether or not:

1. The City has had previous discussion with a Third Party;
2. The City has executed a separate agreement and/or signed a memorandum of understanding with a Third Party; or
3. The City has or has not identified a Third Party.

1.12.2. Third Party and Agency Coordination Contacts

A. For relations with Third Parties and Utility Owners not covered by separate agreements, Non-Profit Entity shall be responsible for all coordination activities, including identifying and maintaining updated contacts lists.

1.13. COORDINATION WITH UTILITY OWNERS

A. Non-Profit Entity shall coordinate directly with respective Utility Owners to identify and confirm utility locations, potential conflicts and relocations necessary for the Project.

B. Non-Profit Entity shall take all actions necessary and reasonably practicable to identify and confirm the existence and exact location, size and type of all Utilities within the Project Site or otherwise potentially affected by the Project construction, including all potentially impacted service lines.

C. Non-Profit Entity is responsible for Utility investigations, conflict resolution, design, design approvals, construction permits, construction, inspection, commissioning and coordination of all new and existing utility line adjustments and protection.

D. Non-Profit Entity's obligation to coordinate is applicable to all Utilities in any way impacted by the Project, whether or not:

   The City has had previous discussions with a Utility Owner.

   1. The City has entered into a utility agreement with the affected Utility Owner.
   2. The City has reliably represented the existing utility on mapping and
   3. The utility was installed before, during construction and during the Term of this Agreement.

E. Non-Profit Entity may enter into separate agreements with one or more Utility Owners. Non-Profit Entity shall submit to the City all such utility agreements before executing.

F. Regarding Utility Coordination and Utility Work, Non-Profit Entity shall be the main point of contact for Utility Owners and the City until the end of the D&C Work, overseeing all Utility Work performed for the mutual benefit of the Non-Profit Entity and the City.

1.13.1. Utility Coordination Work Plan

A. For each Utility, Non-Profit Entity shall prepare, submit to the City, and implement a Utility Coordination Work Plan (UCWP), which shall include:

   1. Preliminary identification of Utility Work necessary for the Project.
   2. Identification of the party responsible for the design, construction, inspection, acceptance, and cost of the specific Utility Work in accordance with the Contract Documents.
   3. Verification that all post-construction utility facilities are capable of providing service at least equal to that offered by the pre-construction utility facilities, unless Utility Owner has specified otherwise.
   4. Submittal, Review, and Approval processes for the City and Utility Owner, as required, in accordance with the Contract Documents and respective Utility Agreements and Utility Owner standards.

5. Regularly-scheduled utility coordination meetings, beginning 30 Days after concluding the Project Work initiation meeting and continuing until the end of the D&C Period. Meetings shall be attended by designated representatives of Non-Profit Entity, Utility Owners, affected Stakeholder(s) and the City. Non-Profit Entity shall record and distribute meeting agendas, minutes, and attendance records.
6. Creation, maintenance and update on a monthly basis the Project Utility Plans showing existing, proposed, and As-Built utility alignments, including temporary relocations and abandonments.
7. Establishing design and construction procedures, processes and schedule for adjusting utilities.
8. Establishing a process and protocols for emergency work that includes timely status updates and coordination with the affected Utility Owner and the City, for issue resolution.
9. Ensuring that Utility Work is completed in accordance with the particular utility coordination work plan. and
10. Creation, maintenance, submittal to the City, and monthly update of a Utility Coordination Work Plan Status Updates, as further defined in Section (Utility Matrix and Utility Work Status Plan).

1.14. ENABLING AND RELATED PROJECTS

1.14.1. Enabling Projects

A. Table 2 Enabling Projects/Tasks identifies enabling projects associated with the Project. Non-Profit Entity shall address the timing of these projects in the Project Schedule.

Table 2: ENABLING PROJECTS/TASKS

LULEP Task #	Project Name	Scope of Work	Start of Work	End of Work
		TABLE IS INTENTIONALLY LEFT BLANK		

1.14.2. Related Projects

A. Non-Profit Entity shall coordinate and be aware of Related Projects that are occurring on or around the Project Site during the D&C Period that will directly interface with Non-Profit Entity's Work, including those listed in Table 3 Related Projects. Construction logistics as well as sharing of haul routes and equipment will need to be coordinated with the City and the other contractors. Non-Profit Entity shall make itself aware of the status and progress of Related Projects and shall coordinate interface requirements with each Related Project.

Table 3: RELATED PROJECTS

Interface Obligation	Project Name	Scope of Work	Responsible Party
Coordination	WD-2801 8- and 12-Inch Ductile Iron Water Main Replacement, 16-Inch Earthquake Resistant Ductile Iron Water Main Installation, Sewer Replacement, and Pavement Renovation, from Mariposa Street to Cesar Chavez on York and Hampshire Streets	Replace and provide redundancy to the aging pipelines of San Francisco's water distribution system, replace aging sewer facilities, and renovate pavement. The work to be performed under this contract includes the installation of 8-, 12- and 16-inch ductile iron and 16-inch earthquake resistant ductile iron water pipe, installation of 12-inch vitrified clay sewer pipe, construction of curb ramps, and pavement renovation.	SFPUC (June 2023 - Oct 2025*) * Scope near Project Site is anticipated to be completed prior to Spring 2025

Interface Obligation	Project Name	Scope of Work	Responsible Party
Coordination	WW-726 Various Locations Sewer Replacement No. 15	Sewer rehabilitation from Potrero Avenue to Hampshire Street on Mariposa Street.1	SFPUC (July 2024 - Jan 2026*) * Scope on Mariposa ~2 months
Coordination	WW-741 Various Locations Spot Main Sewer Replacement No. 1	Partial sewer replacement from Hampshire Street to Bryant Street on 17th Street.	SFPUC (Nov 2024 - Aug 2025*) * Confirming with SFPUC that this scope along 17th Street is still included in their construction contract
Coordination	1850 Bryant Street	New construction of 6-story life sciences facility.	Lighthouse Real Estate (TBD*) * Construction timeline TBD; currently pulling building permits

1.15. COMMUNICATIONS AND PUBLIC INFORMATION

A. The City and Non-Profit Entity shall jointly maintain an open dialogue with the public, businesses, community groups and organizations, Emergency services, affected Third Parties, and Utility Owners with facilities potentially impacted by Non-Profit Entity's means and methods in delivering the Project during the D&C Period. Such communication shall support building a long-term relationship between Non-Profit Entity and Stakeholders based on mutual trust and respect.

B. All public information and communication materials shall meet ADA requirements. All public information and communication materials shall be provided in both English and Spanish.

C. Non-Profit Entity shall obtain permission from trademark owner for all uses of all trademarks.

1.15.1. Media and Communications

1.15.1.1. Media and Communications Team Contacts

A. City must designate at least two (2) City staff members authorized to receive notices and communicate with Non-Profit Entity about all public outreach program matters (each, the "City Project Communications Team Contact") and designate at least two (2) City staff members authorized to receive notices and communicate with Non-Profit Entity about all media matters (each, the "City Media Contact")

B. Non-Profit Entity must designate at least one person (the "Non-Profit Entity Project Communications Team Contact") who will be authorized to receive notices and communicate with City about the public outreach program matters and designate at least one person (the "LD Media Contact") who will be authorized to receive notices and communicate with City about all media matters. Either Party shall have the right to change the persons designated as their respective Communications Team Contact and Media Contact by delivering written notice of that change to the other Party.

1.15.1.2. Press Contacts

A. Non-Profit Entity must not speak with the press or social media about the Project, its negotiations with City or submittals to City, or Non-Profit Entity's proposed development concepts, plans, phasing or uses (collectively, "Press Matters") that have not been approved by City in writing for public release.

B. A "Press Release" means any written press release, advertisement, or other formal communication to any media outlet (including newspapers, local blog, radio and television stations, and web sites). Non-Profit Entity agrees it will provide the City Media Contact with a draft copy of any Press Release with no less than three (3) Business Days' prior notice before its proposed release and will not issue any Press Release that has not been approved by the City Media Contact. City will have the right to issue its own separate Press Releases.

C. The Non-Profit Entity Outreach Plan, see below, will govern Non-Profit Entity's Press Releases and Non-Profit Entity's media contacts unless City gives Non-Profit Entity written notice (a "Noncompliance Notice") that Non-Profit Entity has not kept City informed of Non-Profit Entity media's activities with respect to the Project as required in the Non-Profit Entity Outreach Plan. As of the date of a Noncompliance Notice, Non-Profit Entity may not issue, nor permit or authorize any other party to issue, any Press Release relating to the Project, its negotiations with City or submittals to City, or Non-Profit Entity's proposed development concepts, plans, phasing or uses that have not been approved by the City Media Contact in writing for public release.

1.15.1.3. Press Conference or Media Activity

A. Non-Profit Entity agrees not to hold any press conference or media activities regarding any Press Matters without first inviting the City Media Contact to be present, or have another City representative to be present, at the press conference or media activity and obtaining the City Media Contact's consent to the press conference or media activity. Non-Profit Entity must provide the City Media Contact with no less than five (5) Business Days' prior notice of the date and time of any proposed press conference or media activity and state in detail the purpose of the press conference or media activity and the topics to be discussed ("Conference/Media Summary"). The City Media Contact must review the Conference/Media Summary promptly and advise Non-Profit Entity of any comments by 5:00p.m. on the day before the press conference/media activity. If the City Media Contact does not respond within two (2) Business Days of receiving the Conference/Media Summary, the Conference/Media Summary will be deemed approved.

B. Non-Profit Entity must make reasonable efforts to schedule the press conference or media activity to accommodate the schedules of the City representatives designated to attend by the City Media Contact. If City reasonably believes the proposed press conference/media activity would adversely affect its interests, then City shall have the right to withhold its consent to Non-Profit Entity holding the press conference or media activity, even if the press conference or media activity may further Non-Profit Entity's interests.

C. City is entitled to withhold its consent to a Press Release, proposed press conference or media activity by Non-Profit Entity, or a Conference/Media Summary if the City believes it would adversely affect the City's relationship with the public or a regulatory agency or adversely affect a regulatory agency's decision regarding any Regulatory Approvals. If the City Media Contact reviews a Press Release or Conference/Media Summary and believes that revisions or changes are advisable and appropriate, Non-Profit Entity must make the those suggested revisions or changes irrespective of whether it may further Non-Profit Entity's interests.

D. Non-Profit Entity must timely notify the City Media Contact of media inquiries regarding the Project received by Non-Profit Entity and Non-Profit Entity's proposed response. The City Media Contact can waive any of the notice periods required under Section 7.6 (Community Outreach and Public Relations) in writing or by telephone.

1.15.2. Public Outreach and Engagement

1.15.2.1. City Public Outreach and Engagement Program

A. The City will lead the stakeholder outreach to the following parties (the "City Outreach Parties"): City staff, SFMTA staff, the SFMTA Citizens' Advisory Council, other SFMTA working and advisory groups, the SFMTA Board, the Board of Supervisors (and its committees and members), City departments, and other City regulatory agencies. This outreach (the "City Public Outreach and Engagement Program") will be to educate the City Outreach Parties and address any of their questions regarding the Infrastructure Facility. Non-Profit Entity must not initiate any outreach for matters within the City Public Outreach and Engagement Program. Non-Profit Entity must forward any questions or information requests it receives from the City Outreach Parties for matters within the scope of the City Public Outreach Program (other than those raised by a Regulatory Agency in connection with a Regulatory Approval) to a City Project Communications Team Contact and notify the questioner or requester that it is doing so.

1.15.2.2. Non-Profit Entity Support

A. Non-Profit Entity must use commercially reasonable efforts to support the City Public Outreach and Engagement Program by taking the following actions:

Attending meetings scheduled by the City with members of the public and any of the City Outreach Parties to describe the Infrastructure Facility, provided the City shall provide at least five (5) Business Days' prior notice of such meetings to Non-Profit Entity.

1. Providing supporting materials for those meetings, as requested by the City
2. Collaborating with the City on any written materials provided by the City to Non-Profit Entity for the City Public Outreach and Engagement Program
3. If the City requests Non-Profit Entity to provide supporting materials for the meetings described above or input on any materials described above, Non-Profit Entity must make commercially reasonable efforts to provide those materials or that input within three (3) Business Days following its receipt of the City's request; if such supporting materials cannot be reasonably provided within such three (3) Business Day period, then Non-Profit Entity must provide them as soon as reasonably possible.

1.15.2.3. Public Outreach and Engagement Plan

A. Non-Profit Entity shall develop a Public Outreach and Engagement Plan (the "Public Outreach Plan") and submit for City's review. Once approved by City, Non-Profit Entity must comply with the processes and requirements of the Public Outreach Plan. Non-Profit Entity will work collaboratively with City to ensure that the goals of the Public Outreach Plan are met, and address any needed changes to Public Outreach Plan during the Term.

B. Non-Profit Entity shall develop the Public Outreach Plan using City's Communications Division's Public Outreach and Engagement Requirements (POER) v.1.0, which is included in Division 9 of the Technical Requirements. The Public Outreach Plan also must conform to the process described in the Public Outreach and Engagement Plan Guide included as an attachment to Division 9 of the Technical Requirements.

C. At a minimum, the Public Outreach Plan shall provide for the requirements herein and referenced herein and shall:

1. Identify community stakeholders and describe planned engagement with stakeholders, including those located within a minimum of 900 feet of the Project Site:
    a. Local residents (renters and homeowners)
    b. Neighborhood and merchant groups
    c. Businesses
    d. Property owners (business improvement districts, etc.)
    e. Faith-based institutions
    f. Cultural organizations
    g. Community-based organizations
2. Identify opportunities for community stakeholders to provide input and influence the Project including in developing alternatives and formulating solutions.
3. Detail outreach and engagement techniques that will be used to inform the public and solicit stakeholder input that could affect the Project, including multi-channel, multilingual communications tactics, community meetings, and other outreach methods.
4. Develop key messages for both general and specific audiences.
5. Establish a schedule for public outreach and engagement activities and tasks.
6. Establish a budget to fund the City Public Outreach and Engagement Program and Public Outreach Plan to safely and effectively engage with Project stakeholders through each Project phase (i.e. i.e. Project led events, community tabling events, sponsoring community events, collateral mailers, newspaper, radio and online ads, brochures, flyers, posters/signage, website/digital content, stakeholder giveaways, hand sanitizers, t-shirts, tote bags, water bottles, and other forums for educating the public).
7. Ensure that stakeholder contact information and correspondence is sent weekly to the City Project Communications Team Contact in order to update their stakeholder database.

D. Propose, plan, and schedule regular stakeholder updates by email, physical mailers, or in-person or virtual meetings when appropriate. These various communications channels are intended to keep Project stakeholders informed as the Project progresses. The proposed schedule of in-person and/or virtual meetings may be based on time, such as quarterly, and or may track to key Project milestones or community decision points for the Project.

1.15.2.4. Potrero Yard Neighborhood Working Group

A. Commencing on the Effective Date, Non-Profit Entity will take the lead in facilitating, attending and sufficiently funding regular Potrero Yard Neighborhood Working Group meetings and activities during the Term. Prior to the Effective Date, the Potrero Yard Neighborhood Working Group shall generally meet on a quarterly basis.

1.15.3. Project Tours

A. From time to time, representatives of public agencies, community-based organizations, elected officials, and others may wish to tour the Project Site. Non-Profit Entity shall accommodate reasonable requests for Project tours, subject to the following:

1. A maximum of five (5) tours per calendar year, not to exceed a total of twenty (20) tours over the Term;
2. Written notice of no fewer than seven (7) Days must be provided prior to any tour; and
3. All tours shall be conducted in a manner that does not interfere with the safe and timely prosecution of the Work.

B. Non-Profit Entity shall give due consideration to the importance of community engagement when scheduling and facilitating such tours.

1.16. ASSET MANAGEMENT PLAN

A. Non-Profit Entity, in consultation with and with contributions from the City and selected stakeholders, shall prepare the Asset Management Plan and submit it to the City for review and approval no later than 180 days prior to the scheduled Substantial Completion Date. The Asset Management Plan shall be intended to inform the City's ongoing asset maintenance and renewal planning. Non-Profit Entity shall revise and resubmit the Asset Management Plan if material changes to the asset scope or performance characteristics occur prior to Substantial Completion.

B. The Asset Management Plan shall include, at a minimum:

1. A summary of recommended scheduled maintenance activities for major systems and assets, organized by year.
2. A Renewal Work schedule that identifies key asset replacement or refurbishment timelines, including estimated start and completion dates, based on asset lifecycle expectations.
3. Detailed asset-level information for all Commissioned Systems and associated equipment necessary to support long-term operation and maintenance. For each asset, Non-Profit Entity shall provide, at a minimum: asset type, make, model, serial number, installation location, commissioning date, maintenance requirements, inspection frequencies, replacement intervals, and critical spare parts. This information must align with and reference the As-Built Drawings as required under Section 1.6.5.
4. A complete inventory of all equipment warranties and maintenance service agreements, including identification of equipment supplier and service providers. Non-Profit Entity shall be responsible for establishing and setting up all applicable service contracts for equipment requiring specialized maintenance, in coordination with the equipment suppliers and the City.

1.17. COMPUTER AIDED FACILITY MANAGEMENT SYSTEM (CAFM)

A. The Non-Profit Entity shall utilize a CAFM as the basis for development of the Asset Management Plan and specifically to manage the Infrastructure Facility. The CAFM shall be developed in coordination with the City's Asset Management System (Infor CloudSuite EAM platform). City will have access to the Infrastructure Facility's CAFM for auditing purposes and submission of task orders into the system.

B. The CAFM system, including hardware and software, shall allow for the following Infrastructure Facility management functions:

1. Long-range and annual Infrastructure Facility planning.
2. Infrastructure Facility financial forecasting.
3. Work specifications, installation, and space management.
4. Architectural and engineering planning and design, with floor plans, area and room numbers, doors, keys and key card access system
5. New construction and/or renovation.
6. Maintenance and operations management, including both Scheduled Maintenance, Demand Maintenance and Renewal Work
7. IFM Services order execution and organization
8. Materials purchasing
9. Spare parts inventory management
10. Telecommunications integration, security, and general administrative services
11. Sustainability monitoring, reporting, and forecasting
12. Subcontracts, suppliers, and personnel management
13. Customer satisfaction auditing
14. Document management

C. Non-Profit Entity shall work with City to enable City to implement an integration within their system between the Non-Profit Entity system and City's Asset Management System.

Appendix A

IT and Communications Scope Allocation

Information technology and communications (together, IT/Comms) requirements are included in Division 3 of the Technical Requirements. City-Furnished IT/Comms is the subject of an Allowance. For avoidance of doubt, the following defines the scope of the IT/Comms systems for the IF in two groups and provides clarity on the scope allocation between Non-Profit Entity and the City:

- **Table 4** defines the IT/Comms Infrastructure that Non-Profit Entity will be responsible for. This IT/Comms Infrastructure is generally defined as the fixed infrastructure in the IF including IT/Comms rooms and their corresponding HVAC, cabling distribution support hardware (e.g., such as raceways and conduits), power feeds, etc.
- **Table 5** defines the IT/Comms Equipment that the Non-Profit Entity or the City will be responsible for. This IT/Comms Equipment is generally defined as equipment in the IF including servers, network switches, LAN/Wifi networking equipment and cabling, displays, etc. This table allocates responsibilities for specific items of the IT/Comms Equipment to the Non-Profit Entity or the City – items allocated to the City will be furnished, installed, operated, and maintained by the City and subject to the City-Furnished IT/Comms Allowance, unless noted otherwise in Table 5.

The IT/Comms Systems associated with the Infrastructure Facility will be designed, procured, and installed, unless noted otherwise, by the Non-Profit Entity.

Table 4: Scope of Work for the Infrastructure Facility's IT/Comms Infrastructure

Component of the IT/Comms Infrastructure	Non-Profit Entity	City	Notes
Facility infrastructure, rooms, pathways, Telecom vaults, and the MEP and Fire Protection systems required to support them	X		Provision responsibility of the Non-Profit Entity.
In-building pathways and distribution	X		Provision responsibility of the Non-Profit Entity. Horizontal cable trays and EMT conduit are acceptable.

EMT = Electrical Metal Tubing

MEP = Mechanical, Electrical, and Plumbing

Table 5: Scope of Work for the Infrastructure Facility's IT/Comms Equipment

Component of the IT/Comms Equipment	Non-Profit Entity	City-Furnished IT/Comms FF&E	Subject to Allowance	Notes
Incoming Service – Telephone		X		City orders or coordinates installation of telephone service via the Non-Profit Entity.
Incoming Service – Private Circuits		X		City orders or coordinates installation of private circuits via the Non-Profit Entity.
Incoming Service – Internet		X		The City provides internet service for Wireless LAN.
Fit-out of IT/Comms Infrastructure spaces	X			Includes racks, pathways, and grounding system.
Active network and switches		X	X	The City will furnish and install the permanent network switches. The Non-Profit Entity needs to outfit the IF for the City's network to be functional, including running cabling for the appropriate data drops to workspaces and offices per the Non-Profit Entity's design, and installing appropriate cable trays and conduit to properly route and support the cabling.
Fit-out of Security Office	X			Includes furniture and connectivity – see Division 3 (*Design Criteria Document*) of the Technical Requirements. The City provides the needed technology. Non-Profit Entity will provide the FF&E similar to a Class A office.
PC's, displays, RTLS, and other equipment		X	X	City procures, installs, maintains, and manages any equipment that the City needs in the IF.
Backbone cabling (fiber, multipair copper, coax, or aluminum)	X			Provision and installation responsibility of the Non-Profit Entity.
Horizontal/distribution cabling (in-building and on-site)	X			Provision and installation responsibility of the Non-Profit Entity.
Tel/data terminations, patch panels, and outlets	X			Provision and installation responsibility of the Non-Profit Entity.
Digital signage	X			Provision and installation is the responsibility of the Non-Profit Entity. Digital signage is not specifically required by Division 3 (*Design Criteria Document*) of the Technical Requirements. If Non-Profit Entity recommends digital signage, the Non-Profit Entity will be responsible for its provision and

Component of the IT/Comms Equipment	Non-Profit Entity	City-Furnished IT/Comms FF&E	Subject to Allowance	Notes
				installation and this will not constitute a Change.
Component of the IT/Comms Equipment	**Non-Profit Entity**	**City-Furnished IT/Comms FF&E**		**Notes**
Master clock system and display clocks	X			Provision and installation is the responsibility of the Non-Profit Entity. City will provide content for master clock. A master clock system is not specifically required by Division 3 (*Design Criteria Document*) of the Technical Requirements. If during design the LD or Non-Profit Entity recommends a master clock system, the Non-Profit Entity will be responsible for its provision and maintenance. The City will review content and performance
Distributed antenna system for cellular/private mobile radios	X			Non-Profit Entity shall provide a study to determine whether a Distributed Antennae System is required for the project. The additional of a DAS is subject to the terms of the allowance.
Wireless LAN (-65 dB on 95% of site 99.9% availability)	X	X	X (for WAP devices only)	The Non-Profit Entity shall install conduit and Ethernet cabling to each of the wireless access points (WAPs). Non-Profit Entity shall provide and install WAP devices. The Non-Profit Entity shall propose the locations of the WAP devices, subject to City approval, prior to Non-Profit Entity's installation of WAP devices. The Non-Profit Entity will be responsible for proposing locations and installing the hardware. The Non-Profit Entity is expected to design based on predictive analysis and will run appropriate network cabling. The City will be responsible for configuring the hardware, perform surveys, and create heat maps after the WAP installation.

Component of the IT/Comms Equipment	Non-Profit Entity	City-Furnished IT/Comms FF&E	Subject to Allowance	Notes
Office automation systems (email, fileservers, etc.)		X		City provides, operates, and maintains.
Geographical Information Systems		X		City provides, operates, and maintains.
CCTV cameras	X			Provision and installation responsibility of the Non-Profit Entity.

dB = decibels
FF&E = furniture, fixtures, and equipment
LAN = local area network
WAP = wireless access points

Appendix B

Initial List of Submittals

Potrero Yard - Technical Requirements

Exhibit 18, Division 01 - Initial List of Submittals

Date of update: 18-Feb-26

ID Number	Section Reference	Contract Data Item Title / Description	Required Submission Timing	City Submittal Action	Notes/Comments
001	1.1.1. - A	Project Management Plan	NTP 1 + 15 Days	Approval	
002	1.1.3 - D	Project Meeting Agendas and Materials	3 Business Days before meeting	Review/Comment	
003	1.1.3 - D	Project Meeting Minutes	3 Business Days after meeting	Review/Comment	
004	1.1.3.1	Project Work Initiation Meeting Agenda	3 Business Days before meeting	Review/Comment	
005	1.1.3.1	Project Work Initiation Meeting Minutes	3 Business Days after meeting	Review/Comment	
006	1.1.3.2	Design Initiation Meeting Agenda	3 Business Days before meeting	Review/Comment	
007	1.1.3.2	Design Initiation Meeting Minutes	3 Business Days after meeting	Review/Comment	
008	1.1.3.3	Construction Initiation Meeting Agenda	3 Business Days before meeting	Review/Comment	
009	1.1.3.3	Construction Initiation Meeting Minutes	3 Business Days after meeting	Review/Comment	
010	1.1.3.4	Weekly Project Coordination Meeting Agenda	3 Business Days before meeting	Review/Comment	
011	1.1.3.4	Weekly Project Coordination Meeting Minutes	3 Business Days after meeting	Review/Comment	
012	1.1.3.5	Monthly Progress Meeting Agenda	3 Business Days before meeting	Review/Comment	
013	1.1.3.5	Monthly Progress Meeting Minutes	3 Business Days after meeting	Review/Comment	
014	1.1.3.6	Ongoing Coordination Meeting Agenda	3 Business Days before meeting	Review/Comment	
015	1.1.3.6	Ongoing Coordination Meeting Minutes	3 Business Days after meeting	Review/Comment	
016	1.1.3.7	Special Meeting Agenda	3 Business Days before meeting	Review/Comment	
017	1.1.3.7	Special Meeting Minutes	3 Business Days after meeting	Review/Comment	
018	1.1.4.- B	Key Personnel Register	NTP 1 + 5 Days	Approval	
019	1.1.4. - C	Candidate Key Person Replacement Resume and References	21 Days before anticipated start	Approval	
020	1.1.6	Regulatory Approvals Plan	NTP 1 + 30 Days	Review/Comment	
021	1.1.7.1. - A	Design Management Plan	Prior to NTP 1	Review/Accept	
022	1.1.7.2. - A	Construction Management Plan	Prior to NTP 2	Approval	
023	1.1.7.3	Offsite Utility Reasonable Investigation Plan	No later than 135 days after NTP1	Review/Comment	
024	1.1.7.4	BEB Charging Infrastructure and BEB Charging Equipment Layout Space Plan	before completion of 100% SD+	Review/Comment	
025	1.2.1.3. - A	Project Schedule	Prior to NTP 2	Approval	
026	1.2.1.4. - A	Revised Project Schedule	Within 10 Days after criteria occurs	Approval	
027	1.2.1.5. - A	Recovery Schdule	Within 15 Days after criteria occurs	Approval	
028	1.2.1.6. - A	Project Schedule Monthly Updates	Monthly: 3 days before Monthly Progress Meeting	Review/Comment	
029	1.2.1.7.	D&C Submittal Schedule	Initial: Project Schedule + 7 Days Final: Initial City Response + 14 Days	Review/Accept	
030	1.2.1.8.	Lookahead Activity Reports	3 Business Days prior to Weekly Coordination Meeting	Information	
031	1.2.4.1	Monthly Progress Status Report	3 Business Days before Monthly Progress Meeting	Review and Comment	
032	1.2.5	As-Built Schedule and Final Schedule Report	as a precondition for Final Acceptance	Approval	
033	1.2.6. - A	Time Impact Analysis	with any requests of claims for extension in Contract Time	Approval	
034	1.3.C	List of Submittals	Initial: Financial Close + 30 Days Updates: Monthly in Progrss Status Report, more frequent if necessary	Review/Accept	
035	1.4.1	Project Quality Program Plan (PQPP)	Initial: Prior to NTP 2 Updates: Monthly in Progrss Status Report, more frequent if necessary	Review/Accept	
036	1.4.1.4	Product Identification, Availability, and Traceability documentation		Review/Comment	
037	1.4.1.9	Control of Nonconforming Work procedures		Review/Comment	
038	1.4.1.11	Control of Quality Records procedures		Review/Comment	
039	1.4.1.12	Quality Audits procedures		Review/Comment	
040	1.4.1.13	Training procedures		Review/Comment	
041	1.4.2	Project Design Quality Plan (PDQP)	Prior to NTP 1	Review/Accept	
042	1.4.3	Project Construction Quality Plan (PCQP)	Prior to NTP 2	Review/Accept	
043	1.4.3.1 - E	Candidate Independent Testing Laboratory Credentials	60 Days before planned testing at that ITL	Review/Accept	
044	1.4.3.1 - F	ITL Portable and Satellite Policies and Procedures	5 Days after the City request received	Information	
045	1.4.3.3	Material and Equipment Conformance Certifications	5 Days after the City request received	Information	
046	1.4.3.3 - C	Source of Supply Compliance Certifications	5 Days after the City request received	Information	
047	1.6	Information Management Plan (IMP)	NTP 1 + 60 Days	Approval	
048	1.6.1	Document Management Software Training Session	NTP1 + 10 Days		
049	1.6.4. - A	As-Built Documents	Collectively: prior to Final Acceptance	Approval	
050	1.8.5.2	50% Design Development (50% DD) Proporietary Design Review Deliverable	at 50% Design Development	Review/Comment	
051	1.8.5.2	100% Design Development (100% DD) Proporietary Design Review Deliverable	at 100% Design Development	Review/Comment	
052	1.8.5.2	50% Construction Documents (50% CD) Proporietary Design Review Deliverable	at 50% Construction Documents	Review/Comment	

Potrero Yard - Technical Requirements

Exhibit 18, Division 01 - Initial List of Submittals

Date of update:	18-Feb-26				
ID Number	**Section Reference**	**Contract Data Item Title / Description**	**Required Submission Timing**	**City Submittal Action**	**Notes/Comments**
053	1.8.5.2	90% Construction Documents (90% CD) Proprietary Design Review Deliverable	at 90% Construction Documents	Review/Comment	
054	1.8.5.2	100% Construction Documents (100% CD) Proporietary Design Review Deliverable	at 100% Construction Documents	Review/Comment	
055	1.9.1	Sustainability Management Plan	NTP 1 + 4 Months	Review/Comment	
056	1.10.2	BIM Project Execution Plan	NTP 1 + 60 Days	Review/Comment	
057	1.11.2.2	Site Security Plan (SSP)	NTP 1 + 60 Days	Review/Comment	
058	1.11.2.3	Security Requirements	24 hours after City request	Approval	
059	1.11.3.1 - A	Transportation Management Plan (TMP)	60 Days before start of each phase of each Construction Work zone	Review/Comment	
060	1.11.3.2.1	Traffic Control Plan (TCP)	Initial: 30 Days before start of each phase of each Construction Work zone Updates: Monthly in Progress Status Report, more frequent if necessary	Review/Comment	
061	1.11.4.1 - C	Temporary Utility Designs and Engineered Drawings	Per Utility Agreement	Information	
062	1.11.4.3	Construction Management Office Plans	45 Days prior to planned office occupancy	Approval	
063	1.11.7	Final Cleaning	Prior to Substantial Completion	Approval	
064	1.13.1	Utility Coordination Work Plan (UCWP) (one or more per Utility Owner)	Initial: NTP 1 + 30 Days Update: Monthly in Progress Status Report	Information	
065	1.15.2.3	Public Outreach and Engagement Plan (PPC Outreach Plan)	Initial: NTP 1 + 60 Days Updates: Monthly in Progress Status Report	Approval	

Potrero Yard - Technical Requirements

Exhibit 18, Division 03 - Initial List of Submittals

Date of update: 16-Jan-26

ID Number	Section Reference	Contract Data Item Title / Description	Required Submission Timing	City Submittal Action	Notes/Comments
001	4.1.1 Slab on Grade	Design and locate joints to control and direct shrinkage cracking of concrete elements per ACI recommendations. Submit a Joint Plan.	60 days prior to placing exposed slabs and walls.	Review/Comment	
002	4.3 Exterior Enclosures	Project aesthetics package	include in 50% Design Development (50% DD) Proporietary Design Review Deliverable	Approval	
003	4.3.4 Exterior Masonry	Material sample(s), mock-ups, shop drawings, anchorage, and reinforcing materials.	include in 50% Design Development (50% DD) Proporietary Design Review Deliverable	Approval	
004	4.3.6 Precast Architectural Concrete	Product data and samples, mock up, and shop drawings.	include in 50% Design Development (50% DD) Proporietary Design Review Deliverable	Approval	
005	4.3.12 Glazing	12-inch by 12-inch samples for each glass type with fabricator product information.	include in 50% Design Development (50% DD) Proporietary Design Review Deliverable	Approval	
006	4.3.31 Expansion Control	Submit movement control diagrams addressing full structure. Submit calculations and rationale for joint locations, types and sizes. Expansion control elements shall match or be of a compatible color with the adjacent materials.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
007	4.4 Interior Consturction	Submit for approval by the SFTMA product data, certificates and test reports verifying materials selected conform to performance standards listed in this document.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
008	4.5.5 Expansion Control	Submit movement control diagrams addressing full structure. Submit calculations and rationale for joint locations, types and sizes. Expansion control elements shall match or be of a compatible color with the adjacent materials.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
009	4.8 Conveying - Elevators	The PPC shall submit 3-inch by 12-inch samples of actual finished material for review of color, pattern, and texture of exposed finishes.	include in 50% Design Development (50% DD) Proporietary Design Review Deliverable	Approval	
010	4.10 HVAC	Submit ventilation plan demonstrating compliance with this article before submitting it to the San Francisco Department of Public Health for review and approval prior to submitting mechanical drawings for approval.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
011	4.13 Electrical	Submit the following calculations and analyses, sealed by a Registered Professional Engineer: Demand load as calculated per requirements of NFPA 70 Article 220. Lighting Photometrics: Submit point-by-point calculations for 100 percent of the site and each unique room type in the buiPPCings. Submit separate calculations proving compliance with NFPA 101 for emergency/egress lighting. Emergency generator – provide calculations proving the capability of the proposed generator to serve the required emergency loads plus 25 percent spare capacity. The analysis shall assume the spare capacity load to be constant kVA load. Analysis shall include starting of motor loads as sequenced by the BAS. Calculations shall assume generator operation with diesel fuel source. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads. Short circuit – provide calculated momentary (0.5 cycle) fault current values for all 15 kV and 480V busses, and 208/240V panels served from 75 kVA or larger transformers. Arc flash (hazard analysis, arc flash boundary, incident energy) – provide calculation results for all busses 150V (AC and DC) and greater. Voltage drop – provide calculations for the main buiPPCing services, feeders longer than 50-feet, all site lighting branch circuits, and all branch circuits longer than 75-feet or loaded greater than 50 percent of the circuit rating. Protective device coordination – provide time-current curve (TCC) plots showing proper coordination of all panel main breakers with upline devices, coordination of switchboard feeder breakers with main breakers and coordination of switchboard main breakers with 15 kV feeder relaying. Fire Alarm – provide battery capacity calculations proving compliance with NFPA 72. UPS – provide battery capacity calculations.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
012	4.13.1 Building Power Distribution	The NPE shall submit calculations which support the required size of the UPS and batteries. The UPS input shall be fed from the generator or the secondary utility feed for continued operation following the rated load period of 90 minutes. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
013	4.13.9 Closed Circuit Television System (CCTV)	Camera views will be selected based on their function, location, and resolution. The PPC shall submit the CCTV design site plan that shows camera locations, coverage, camera function and the camera model for each location. Submittal shall also include required views generated from the project 3D model from each camera location.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	
014	4.13.9 IT Equipment Procurement	The NPE shall submit the CCTV design site plan that shows camera locations, coverage, camera function and the camera model for each location. Submittal shall also include required views generated from the project 3D model from each camera location.	include in each Proporietary Design Review Deliverable, see Div 01, Section 1.8.5	Approval	

Potrero Yard - Technical Requirements

Exhibit 18, Division 04 - Initial List of Submittals

Date of update:	16-Jan-26				
ID Number	**Section Reference**	**Contract Data Item Title / Description**	**Required Submission Timing**	**City Submittal Action**	**Notes/Comments**
001	1.5.1	50% Design Development Proporietary Design Review Deliverable	at 50% Design Development	Review/Comment	
002	1.5.2	100% Design Development Proporietary Design Review Deliverable	at 100% Design Development	Review/Comment	
003	1.5.3	50% Construction Documents Proporietary Design Review Deliverable	at 50% Construction Documents	Review/Comment	
004	1.5.4	90% Construction Documents Proporietary Design Review Deliverable	at 90% Construction Documents	Review/Comment	
005	1.5.5.	Testing Report verifying Project Criteria are met	more than 21 days before Substantial Comepletion	Review/Comment	
006	2.7	Seismic Resilience Peer Review - Principal Project Company shall prepare and submit deliverables, as described in Section 2.8.	as per Table 1 in Section 2.8 of Division 4	Review/Comment	

Potrero Yard - Technical Requirements

Exhibit 18, Division 06 - Initial List of Submittals

Date of update: 16-Jan-26

ID Number	Section Reference	Contract Data Item Title / Description	Required Submission	Submittal Action (Proprietary)	Comments/Notes
001	6.7.2.1.	Pre-Construction Requirements - Commissioning Plan	Non-Profit Entity shall prepare and submit to the City for its review and approval no later than NTP 2 a Commissioning Plan to evaluate and document that the design, construction, and operation of the Commissioned Systems comply with the Contract Documents.	Approval	
002	6.7.2.2.	Pre-Construction Requirements - Review of Design Documentation	In addition to the Commissioning Issues and Resolution Log, for each round of design review, the CxP shall prepare and submit to Non-Profit Entity a design review memorandum addressing: •List of the documents reviewed; •Laws, standards, and guidelines used to perform the review; and •A summary of the review flagging and describing major issues discovered. The CxP shall submit the design review memorandum and Commissioning Issues and Resolution Log to Non-Profit Entity, no more than two weeks after the Design Deliverables are submitted for City review. Non-Profit Entity shall review the comments and respond to each item with acceptance or a response to the comment. All the comments shall be settled by Non-Profit Entity, D&C Contractor, and CxP. A workshop(s) between the D&C Contractor, Non-Profit Entity and/or CxP may be held to discuss any comments requiring clarification or discussions or decision by Non-Profit Entity. The CxP can chair these workshop(s). Any CxP reviews of design documentation prior to NTP 2 may take place before or during the preparation of the Commissioning Plan.	Information	
003	6.7.3.2.	Submittals Review	During construction the CxP shall review the Submittals stated in the Commissioning Plan as well as any construction Submittals generated by the D&C Contractor related to Commissioned Systems to verify compliance with the Contract Documents. The CxP shall enter all Commissioning Submittal reviews in the Commissioning Issues and Resolution Log. At a frequency determined by the Commissioning Plan, the CxP shall prepare and submit to Non-Profit Entity a Submittal review memorandum addressing: •List of the documents reviewed; •Codes, standards and guidelines used to perform the review; and •A summary of the review flagging and describing major issues discovered. The CxP shall notify Non-Profit Entity of any reviewed submittals that the CxP deems not to meet the requirements of the Contract Documents.	Information	
004	6.7.3.7.	Comissioning Report	Non-Profit Entity shall submit the Commissioning Report to the City for review and approval before Substantial Completion can be achieved.	Approval	
005	6.7.3.8.	Operation and Maintenance Manual	Non-Profit Entity shall ensure City receives an Operational and Maintenance Manual (O&M Manual) drafted in accordance with ASHRAE Guideline 4, 2019 no later than Substantial Completion.	Approval	
006	6.7.4.1.	System Manual	By its nature, the Systems Manual will be a collection of materials already produced by Non-Profit Entity, the D&C Contractor, or the CxP. Non-Profit Entity shall submit the Systems Manual to the City for review and acceptance no later than 180 days after Substantial Completion.	Review/Accept	
006	6.7.4.4.	Near Warranty End Post Occupancy Review	The NPE shall, one (1) year after the Substantial Completion date, provide written documentation to the City describing what was learned through interviews and investigations into performance of SFMTA O&M Facilities and certain Equipment List items, how issues will be resolved through warranties or other means, and develop a final deficiency and action list. This documentation shall include requests for services to remedy outstanding problems. Non-Profit Entity shall provide the written documentation to the City for information.	Information	
007	6.7.4.5.	On-going Commissioning Plan	For purposes of complying with LEED Enhanced Commissioning and building envelope Commissioning requirements, the CxP shall produce and submit to Non-Profit Entity an Ongoing Commissioning Plan no later than one year after the Substantial Completion Date. The plan shall provide the Infrastructure Facility operating staff with procedures, blank test scripts, and a schedule for ongoing Commissioning activities.	Information	
008	6.8.	Monitoring-Based Commissioning (MBCx)	After MBCx activities are complete, the CxP shall update the Systems Manual with any modifications or new settings and give the reason for any modifications from the original design. Non-Profit Entity shall submit any revised Systems Manual to the City and the IFM Provider.	Information	
009	6.9.	Operational Readiness (OR)	Non-Profit Entity shall prepare the Operational Readiness Plan and submit it to the City for review and approval no later than 180 days prior to the scheduled Substantial Completion Date. Non-Profit Entity shall amend and reissue the plan if changes are required. All activities in the Operational Readiness Plan shall be either: (1) completed no later than the Substantial Completion Date; or (2) completed after the Substantial Completion Date as part of the Bedding-In Period activities.	Approval	

Potrero Yard - Technical Requirements

Exhibit 18, Division 09 - Initial List of Submittals

Date of update:	16-Jan-26				
ID Number	**Section Reference**	**Contract Data Item Title / Description**	**Required Submission**	**City Submittal Action**	**Notes/Comments**
001		Public Outreach and Engagement Plan	A report submitted to the POETS webpage after each project phase	Information	

Potrero Yard - Technical Requirements
Exhibit 18, Division 10 - Initial List of Submittals

Date of update: 16-Jan-26

ID Number	Division and Section Reference	Subsection Reference	Contract Data Item Title / Description	Required Submission	Submittal Action (Proprietary)	Notes/Comments
001	Div. 10 - Sec. 007320	1.2.A.4.d	EXISTING UTILITIES - Governmental Facilities in the City of San Francisco	NPE shall submit support designs for approval and start work only with approved support designs.	Information	Only applicable if submitted to Governmental Utility
002	Div. 10 - Sec. 007321	2 Contract Activities	UTILITY CROSSINGS - Supporting Documentation for City Projects other than Spot Sewer Repair Contracts	The NPE shall, at a minimum, submit the following supporting documentation with each invoice submitted to the Utility Company for payment:	Information	Only applicable if submitted to Utility Company
003	Div. 10 - Sec. 007321	2 Contract Activities	UTILITY CROSSINGS - Supporting Documentation for work according the Fixed Price Schedule	The NPE shall, submit following documentation with each invoice submitted to the Utility Company for payment for Spot Sewer Repair Contracts:	Information	
004	Div. 10 - Sec. 01140	1.3.A	ARTWORK COORDINATION - Schedule	Dates for Pre-Art Installation Conference, Artwork installation and Artwork acceptance	Information	
005	Div. 10 - Sec. 011400	1.4	ARTWORK COORDINATION - Artwork Submittals	Submit shop drawings, product data, and samples per this section.	Information	
006	Div. 10 - Sec. 011401	1.8.E	ARTWORK COORDINATION - Artwork Quality Assurance - Mock Ups	NPE shall submit all applicable mock-ups per this section	Information	
007	Div. 10 - Sec. 013233	1.2	Photographic Documentation - Pre-construction and Construction photographs	Pre-construction photographs - submit no later than NTP2 - Deliniated by numbers/ letters indicating location on Site plan - Formatt, CD , DVD, USB drive Construction Photographs per requirements in Part 3 - Execution	Information	
008	Div. 10 - Sec. 013543	1.4.A.1.a	ENVIRONMENTAL PROCEDURES - Submittals	Pre-construction survey for nesting birds that may be affected during construction work. (see Article 3.12 of this section)	Review/Comment	
009	Div. 10 - Sec. 013543	1.4.A.1.b	ENVIRONMENTAL PROCEDURES - Submittals	Photographs of existing landscaping at the limit-of-work line(s). (see Article 3.14 of this section)	Review/Comment	
010	Div. 10 - Sec. 013543	1.4.A.1.c	ENVIRONMENTAL PROCEDURES - Submittals	Tree protection fence locations and stake placement provided at least two weeks in advance of the date for any on-site review of the fence and stake placement. (see Article 3.14 of this section)	Review/Comment	
011	Div. 10 - Sec. 013543	1.4.A.1.d	ENVIRONMENTAL PROCEDURES - Submittals	Written and/or photographic documentation of methods for avoidance of Environmentally Sensitive Areas. (see Article 3.11 of this section)	Review/Comment	
012	Div. 10 - Sec. 013543	1.4.A.1.e	ENVIRONMENTAL PROCEDURES - Submittals	A copy of written notice, accompanied by proof of submittal, provided to the Bay Area Air Quality Management District in accordance with the requirement of the "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations," in advance of roadway construction and maintenance activities in areas soils containing naturally occurring asbestos. (see Article 3.8 of this section)	Review/Comment	
013	Div. 10 - Sec. 013543	1.4.A.1.f	ENVIRONMENTAL PROCEDURES - Submittals	Prior to issuance of construction permits, and prior to commencement of each construction stage, a Project-specific construction noise control plan shall be reviewed and approved by City Planning Department and City. (see Article 3.7 of this section)	Review/Comment	
014	Div. 10 - Sec. 013543	1.4.A.1.g	ENVIRONMENTAL PROCEDURES - Submittals	Prior to issuance of construction permits, Non-Profit Entity's construction emissions minimization plan (CEMP).) shall be reviewed and approved by City Planning Department and City. (see Article 3.6 and 3.20 of this section for CEMP plan requirements)	Information	
015	Div. 10 - Sec. 013543	1.4.A.1.h	ENVIRONMENTAL PROCEDURES - Submittals	Non-Profit Entity's initial dust control plan (DCP). (see Article 3.3 of this section)	Review/Comment	
016	Div. 10 - Sec. 013543	1.4.A.1.i	ENVIRONMENTAL PROCEDURES - Submittals	SFDPH Permit and notification for removal and installation of fuel or chemical storage tanks (see Article 3.23 of this section)	Review/Comment	
017	Div. 10 - Sec. 013543	1.4.A.1.j	ENVIRONMENTAL PROCEDURES - Submittals	SFDPH Well Construction/Decommissioning or Soil Borings Permit (see Article 3.23 of this section)	Review/Comment	
018	Div. 10 - Sec. 013543	1.4.A.1.k	ENVIRONMENTAL PROCEDURES - Submittals	Finalized Asbestos Dust Mitigation Plan approved by BAAQMD (see Article 3.9 of this section)	Review/Comment	
019	Div. 10 - Sec. 013543	1.4.A.1.l	ENVIRONMENTAL PROCEDURES - Submittals	San Francisco Public Works Night-Noise Permit (see Article 3.10 of this section)	Review/Comment	
020	Div. 10 - Sec. 013543	1.4.A.1.m	ENVIRONMENTAL PROCEDURES - Submittals	Prior to issuance of a construction permit, an Archeological Monitoring Plan shall be reviewed and approved by City Planning Department.	Information	
021	Div. 10 - Sec. 013543	1.4.A.1.n	ENVIRONMENTAL PROCEDURES - Submittals	The issued Construction Project Site Runoff Control Permit for the project from the SFPUC with written and schematic summary of details. (see Article 3.21 of this section)	Review/Comment	
022	Div. 10 - Sec. 013543	1.4.A.1.o	ENVIRONMENTAL PROCEDURES - Submittals	The issued WDID for the Stormwater Pollution Prevention Plan (SWPPP) from the Regional Water Quality Control Board with certified SWPPP inspection checklist. (see Article 3.22 of this section)	Review/Comment	
023	Div. 10 - Sec. 013543	1.4.A.1.p	ENVIRONMENTAL PROCEDURES - Submittals	(Not Used)	Review/Comment	
024	Div. 10 - Sec. 013543	1.4.A.1.q	ENVIRONMENTAL PROCEDURES - Submittals	Underground Storage Tank (UST) Permit (see Article 3.23 of this section)	Review/Comment	
025	Div. 10 - Sec. 013543	1.4.A.1.r	ENVIRONMENTAL PROCEDURES - Submittals	Well Construction/Decommissioning or Soil Borings Permit (see Article 3.23 of this section)	Review/Comment	
026	Div. 10 - Sec. 013543	1.4.A.2	ENVIRONMENTAL PROCEDURES - Submittals	Submit qualifications meet the requirements for the following: - Qualified Acoustical Consultant - Qualified Arborist - Specialty Environmental Monitor - Qualified Historic Architect or Historic Preservation Professional - Qualified SWPPP Practictioner (QSP)	Review/Comment	
027	Div. 10 - Sec. 013543	1.4.B.1	ENVIRONMENTAL PROCEDURES - Submittals	Non-Profit Entity shall submit the "ALERT" sheet affidavit within five business days of the start of construction activities. (see Article 3.18 of this section)	Review/Comment	

Potrero Yard - Technical Requirements
Exhibit 18, Division 10 - Initial List of Submittals

Date of update: 16-Jan-26

ID Number	Division and Section Reference	Subsection Reference	Contract Data Item Title / Description	Required Submission	Submittal Action (Proprietary)	Notes/Comments
028	Div. 10 - Sec. 013543	1.4.B.2	ENVIRONMENTAL PROCEDURES - Submittals	(Not Used)	Review/Comment	
029	Div. 10 - Sec. 013543	1.4.B.3	ENVIRONMENTAL PROCEDURES - Submittals	Documentation of disposal in landfill or at a commercial composting facility of plant materials potentially harboring the Phytophthora ramorum pathogen within one week of disposal. (see Article 3.14 of this section)	Review/Comment	
030	Div. 10 - Sec. 013543	1.4.B.4	ENVIRONMENTAL PROCEDURES - Submittals	Certificates of Quarantine Compliance from County Agricultural Commissioner documenting that hay, straw, or mulch used on the project has been inspected and is weed free before installation of stormwater BMPs. (see Article 3.04 of this section)	Review/Comment	
031	Div. 10 - Sec. 013543	1.4.B.5	ENVIRONMENTAL PROCEDURES - Submittals	ESCP inspection checklists transmitted on a monthly basis (see Article 3.21/3.22 of this section)	Review/Comment	
032	Div. 10 - Sec. 013543	1.4.B.6	ENVIRONMENTAL PROCEDURES - Submittals	Notification(s) that Change Orders or other changes in construction conditions will alter the ESCP, and any additional modifications to the ESCP (see Article 3.21/3.22 of this section)	Review/Comment	
033	Div. 10 - Sec. 013543	1.4.B.7	ENVIRONMENTAL PROCEDURES - Submittals	Analytical water-quality monitoring results (see Article 3.21-3.23 of this section)	Review/Comment	
034	Div. 10 - Sec. 013543	1.4.B.8	ENVIRONMENTAL PROCEDURES - Submittals	Noise complaint logs (see Article 3.7 of this section).	Review/Comment	
035	Div. 10 - Sec. 013543	1.4.B.9	ENVIRONMENTAL PROCEDURES - Submittals	Photographic documentation of signage to be posted by the Non-Profit Entity as required by this section:	Review/Comment	
036	Div. 10 - Sec. 013543	1.4.B.9.a	ENVIRONMENTAL PROCEDURES - Submittals	A sign with the telephone number and a City person to contact regarding dust complaints and the BAAQMD's phone number (see Article 3.3 of this section)	Review/Comment	
037	Div. 10 - Sec. 013543	1.4.B.9.b	ENVIRONMENTAL PROCEDURES - Submittals	Legible and visible posted signs, in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the engine-idling limit (see Article 3.6 of this section)	Review/Comment	
038	Div. 10 - Sec. 013543	1.4.B.9.c	ENVIRONMENTAL PROCEDURES - Submittals	Signs on-site pertaining to permitted construction days and hours and noise complaint procedures and who to notify in the event of a problem, with telephone numbers listed (see Article 3.7 of this section)	Review/Comment	
039	Div. 10 - Sec. 013543	1.4.B.9.d	ENVIRONMENTAL PROCEDURES - Submittals	A legible and visible sign summarizing the Construction Emissions Minimization Plan (see Article 3.06 of this section)	Review/Comment	
040	Div. 10 - Sec. 013543	1.4.B.10	ENVIRONMENTAL PROCEDURES - Submittals	Photographic documentation of temporary fence Type ESA at the entire perimeter of ESA -- Biology as shown on the Design Documents (see Article 3.11 and 3.14 of this section).	Review/Comment	
041	Div. 10 - Sec. 013543	1.4.C.1	ENVIRONMENTAL PROCEDURES - Submittals	A final construction emissions minimization plan (CEMP) report summarizing construction activities including the start and end dates and duration of each construction phase, and the specific information required in the CEMP (see Article 3.6 of this section)	Review/Comment	
042	Div. 10 - Sec. 013543	3.3.C.2	ENVIRONMENTAL PROCEDURES - Dust Control BMPs	Non-Profit Entity shall submit a completed application and pay the associated fees to the SFDPH. Non-Profit Entity may not commence Construction Work, demolition, excavation, grading, foundation work, or other permitted activities until Non-Profit Entity has submitted to the City's Authorize RepresentativeCity and City Planning Department a copy of SFDPH director's written approval of the DCP, the plan provisions have been implemented, and the City has subsequently given Non-Profit Entity permission to proceed.		see DCP in Appendix A of the SMP approved by SFDPH Oct 10, 2024
043	Div. 10 - Sec. 013543	3.7.B.3	ENVIRONMENTAL PROCEDURES - Construction Noise Control Best Management Practices	Post a sign onsite describing noise complaint procedures and a complaint hotline number that shall always be answered during construction, and provide to City and City Planning Department photographic documentation that the signage has been posted.	Information	submittal is photograhic evidence of signage being posted
044	Div. 10 - Sec. 013543	3.7.D.3	ENVIRONMENTAL PROCEDURES - Construction Noise Control Best Management Practices	If directed by the City Planning Department, Non-Profit Entity must revise the Project-specific construction noise control plan and resubmit for City Planning Department review and approval. Non-Profit Entity's proposed revisions to the construction noise control plan must be prepared by a qualified acoustical engineer and demonstrate to the City Planning Department what alternative measures to reduce the impacts of construction noise to the extent feasible. The revised construction noise control plan must be approved by the City Planning Department and Non-Profit Entity shall enact all of its provisions before Project Principal Company commences Construction Work that may exceed the standards or omit the controls required above.	Review/Comment	pertains to resubmittal if, before construction mobilization, NPE determines that these standards and/or one or more of these controls cannot be applied
045	Div. 10 - Sec. 013543	3.7.H.1	ENVIRONMENTAL PROCEDURES - Construction Noise Control Best Management Practices	When directed by the City Planning Department, Non-Profit Entity shall submit revisions to the approved construction noise-control plan for review and written approval if, in the sole determination of the City Planning Department, modified noise control minimization measures are not effective. In the event that arevisions to the construction noise- control plan isare required, Non-Profit Entity shall cease the use of equipment that is responsible for exceedances. Non-Profit Entity may resume the use of such equipment after the revised construction noise- control plan is approved and all its provisions are enacted.	Review/Comment	pertains to resubmittal if City determine,s in sole discretion, revisions to the noise control plan are necessary due to recorded execessive noise levels or repeated complaints.
046	Div. 10 - Sec. 013543	3.8.D	ENVIRONMENTAL PROCEDURES - Naturally Occurring Asbestos (NOA)	Before work in areas of NOA shown in the Design Documents which intersect with areas of roadway construction and maintenance which require the disturbance of soils by construction and grading, Non-Profit Entity shall submit the Bay Area Air Quality Management District's (BAAMQD) "Notification Form for Road Construction and Maintenance Operations" to BAAMQD fourteen business days in advance of land disturbance of soils containing NOA.	Information	Informational for City as submittal is to BAAQMD
047	Div. 10 - Sec. 013543	3.8.E.1.a	ENVIRONMENTAL PROCEDURES - Naturally Occurring Asbestos (NOA)	If NOA is unexpectedly encountered after the Project has started, Non-Profit Entity shall submit a notification to the BAAQMD no later than the next business day using the Asbestos Dust Mitigation Plan (ADMP) Discovery Notification Form found at the link below: https://www.baaqmd.gov/~/media/Files/Compliance%20and%20Enforcement/Asbestos/admp_discovery_application.ashx?la=en, and followed by email to the BAAQMD, and at the same time notify City with the project details.	Information	Informational for City as notification is to BAAQMD
048	Div. 10 - Sec. 013543	3.9.A.1	ENVIRONMENTAL PROCEDURES - Asbestos Dust Mitigation	Sixty days (60) days before commencement of grading, and excavation activities, Non-Profit Entity shall submit to the City an Asbestos Dust Mitigation Plan (ADMP) for review.	Review/Comment	
049	Div. 10 - Sec. 013543	3.9.A.2	ENVIRONMENTAL PROCEDURES - Asbestos Dust Mitigation	Upon City's written approval, Non-Profit Entity shall submit the ADMP, the ADMP application, and the BAAQMD Regulation 3 Fees to the Air Pollution Control Officer (APCO) for its review and approval. Non-Profit Entity shall furnish all information required by the BAAQMD to amend and finalize the ADMP. Non-Profit Entity shall not be reimbursed for the BAAQMD Regulation 3 Fees.	Review/Comment	

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050	Div. 10 - Sec. 013543	3.9.A.5	ENVIRONMENTAL PROCEDURES - Asbestos Dust Mitigation	Non-Profit Entity, at no cost to the City, will perform perimeter air monitoring for asbestos at the project site during its soil disturbance activities for the duration of the project. This will be in accordance with the approved ADMP. All record keeping and reporting will be submitted to the BAAQMD on a weekly basis or as per a reporting schedule requested by BAAQMD.	Information	Informational for City as notification is to BAAQMD
051	Div. 10 - Sec. 013543	3.15.F.1	ENVIRONMENTAL PROCEDURES - Site Restoration	With regards to seeding for purposes of restoring the site, mixing shall be performed in the presence of Non-Profit Entity's QC Manager and City. Non-Profit Entity shall submit bags of materials used in the mix to City.	Review/Comment	
052	Div. 10 - Sec. 013543	3.18.A	ENVIRONMENTAL PROCEDURES - ARCHAEOLOGICAL RESOURCE PROTECTION	Prior to issuance of construction permits, Non-Profit Entity shall have an Archeological Monitoring Plan reviewed and approved by City Planning Department. Non-Profit Entity shall ensure compliance with the approved Archeological Monitoring Plan which shall govern for the associated construction activities as stated in the approved plan.	Information	Informational for City as approval is City Planning Department
053	Div. 10 - Sec. 013543	3.18.A.1	ENVIRONMENTAL PROCEDURES - ARCHAEOLOGICAL RESOURCE PROTECTION	Following the distribution of the "ALERT" sheet, Non-Profit Entity shall provide City with a signed affidavit confirming that all field personnel have received copies of the "ALERT" sheet.	Review/Comment	
054	Div. 10 - Sec. 013543	3.20.C	ENVIRONMENTAL PROCEDURES - San Francisco Environment Code Clean Construction Requirements for Work in an Air PollutantExposure Zone (APEZ)	Non-Profit Entity shall submit a Construction Emissions Minimization Plan (CEMP) to the City Planning Department for review and written approval for compliance with Chapter 25 of the San Francisco Environment Code.	Information	redundant with 1.4.A.1.g above
055	Div. 10 - Sec. 013543	3.20.D	ENVIRONMENTAL PROCEDURES - San Francisco Environment Code Clean Construction Requirements for Work in an Air PollutantExposure Zone (APEZ)	Non-Profit Entity must submit a signed Clean Construction Emissions Plan Certification Statement to the City Planning Department. Refer to the following link for the Emissions Plan Certification Statement Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.	Information	submittal part of CEMP process
056	Div. 10 - Sec. 013543	3.20.H	ENVIRONMENTAL PROCEDURES - San Francisco Environment Code Clean Construction Requirements for Work in an Air PollutantExposure Zone (APEZ)	Non-Profit Entity shall submit quarterly and biannual reports to the City Planning Department documenting compliance with the CEMP, and submit each report within seven business days of the end of each quarter.	Information	
057	Div. 10 - Sec. 013543	3.20.I	ENVIRONMENTAL PROCEDURES - San Francisco Environment Code Clean Construction Requirements for Work in an Air PollutantExposure Zone (APEZ)	Non-Profit Entity shall submit a final CEMP report within four weeks of achieving Substantial Completion summarizing compliance of construction activities with the CEMP, including the start and end dates and duration of each Construction Phase	Information	
058	Div. 10 - Sec. 013543	3.21.B	ENVIRONMENTAL PROCEDURES - CONSTRUCTION SITE RUNOFF CONTROL PERMIT	Non-Profit Entity shall submit the Construction Site Runoff Control Permit Application within (30) thirty calendar days after NTP 2 for review and approval by the City.	Review/Comment	
059	Div. 10 - Sec. 013543	3.21.D	ENVIRONMENTAL PROCEDURES - CONSTRUCTION SITE RUNOFF CONTROL PERMIT	Non-Profit Entity shall provide the SFPUC with a transmittal, with a copy to the City Planning Department, at least two working days before each these milestones to inform the SFPUC inspector that the following are about to occur: 1. Commencement of Construction Work. 2. Erosion and sediment control measures are completely installed and stabilized. 3. Final grading has been completed. 4. Substantial Completion.	Information	Informational for City as notfication is to SFPUC
060	Div. 10 - Sec. 013543	3.24.A.3	EMERGENCY OR BACKUP DIESEL GENERATOR HEALTH RISK REDUCTION PLAN	The Non-Profit Entity shall submit the plan to City Planning Department for review and approval prior to issuance of a permit for emergency diesel generators from the San Francisco Department of Building Inspection or the Bay Area Air Quality Management District.	Information	Informational for City as notfication is to SF Building Inspection or BAAQMD
061	Div. 10 - Sec. 013543	3.25.A	FIXED MECHANICAL EQUIPMENT NOISE CONTROL FOR BUILDING OPERATIONS	Prior to approval of a building permit, the Non-Profit Entity shall submit documentation to City Planning Department, demonstrating with reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment):	Information	Informational for City as notfication is to City Planning Dept. There are 9 meaures follow this statement in the TRs
062	Div. 10 - Sec. 013543	Appendix B	COMPLETE ENVIRONMENTAL MITIGATION AND MONITORING PLAN	See all submittals contained therein.	Information	Non-Profit Entity is responsible for all submittal requirements in Division 10 Section 01 35 43 Appendix B: COMPLETE ENVIRONMENTAL MITIGATION AND MONITORING PLAN.
063	Div. 10 - Sec. 013544	1.1.E	HAZARDOUS BUILDING MATERIALS - Summary - Environmenal	Non-Profit Entity shall submit to City as Regulator certifications or proof of the trainings, listed below, as a Submittal as per Section 02 80 13 Hazardous Building Materials Remediation. 1. Health and Safety training 2. HAZWOPER training 3. Cal/OSHA Competent Person training for the field supervisor overseeing activities that disturb asbestos, or naturally occurring asbestos (NOA) as per Title 8 CCR 1529. 4. Cal/OSHA asbestos training (for all trades who will come in contact and disturb asbestos or NOA. 5. Lead training (for all trades that will come in contact and disturb lead containing paints as per Cal/OSHA 1532.1 Lead in Construction standard) 6. Medical examination and blood tests (as warranted) 7. Respiratory protection (including current respirator fit test records) 8. Storm water pollution prevention awareness training to enable the Non-Profit Entity's personnel to comply with the Erosion and Sediment Control Plan. 9. Other training pertaining to the Work being conducted.	Information	

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064	Div. 10 - Sec. 013544	1.4.A.1	HAZARDOUS BUILDING MATERIALS – Abatement Contractor's Qualifications	Non-Profit Entity shall ensure that any entity that performs the abatement Work submits to the City as Regulator current licenses and certifications for the specific type of abatement Work to be performed. Submits to the City as Regulator a letter confirming compliance with current Laws, as outlined in the specifications listed in the paragraph below.	Information	
065	Div. 10 - Sec. 013544	1.4.A.2	HAZARDOUS BUILDING MATERIALS – Abatement Contractor's Qualifications	Non-Profit Entity shall ensure that any entity that performs the abatement Work submits to City as Regulator copies of any notices regarding safety and environmental violations received from regulatory agencies in the last 20 years.	Information	
066	Div. 10 - Sec. 013544	1.4.B.1	HAZARDOUS BUILDING MATERIALS – Hazardous Material Management Plan (HMMP)	Before commencing any abatement Work, Non-Profit Entity shall submit to the City's Authorized Representative and City as Regulator a Hazardous Materials Management Plan (HMMP) in accordance to the requirements of this Section, and Section 02 80 13 Building Related Hazardous Materials Remediation.	Review/Comment	See 02 80 13 for additional Hazardous Materials and Hazardous Waste requirements.
067	Div. 10 - Sec. 013544	1.8.A	HAZARDOUS BUILDING MATERIALS – Waste Handling and Characterization	The Contractor shall submit to the City as Regulator a Waste Management Plan (WMP) as specified under Section 02 80 13 Building Related Hazardous Materials Remediation.	Information	
068	Div. 10 - Sec. 013544	1.8.D	HAZARDOUS BUILDING MATERIALS – Waste Handling and Characterization	Non-Profit Entity shall obtain and pay for all sampling and profiling analyses required for waste disposal. Non-Profit Entity shall ensure that California CDPH-accredited laboratories perform analyses. Non-Profit Entity shall submit results of such analyses to the City as Regulator prior to scheduling the waste off haul.	Information	
069	Div. 10 - Sec. 013544	1.8.P	HAZARDOUS BUILDING MATERIALS – Asbestos Waste Disposal	1.d. Non-Profit Entity shall provide, prepare and submit to the City's Authorized Representative and SAR group within City Public Works Department a Uniform Hazardous Waste Manifest Form for asbestos Hazardous Waste shipments.	Information	
070	Div. 10 - Sec. 013544	1.9.B	HAZARDOUS BUILDING MATERIALS – Non-hazardous manifest form	Non-Profit Entity shall submit each non-hazardous waste manifest form to the SAR group within City Public Works Department for the generator's signature at least 72 hours in advance of the day of the off-haul with an estimate of the number of loads scheduled for off-haul.	Information	
071	Div. 10 - Sec. 013544	1.9.D	HAZARDOUS BUILDING MATERIALS – Non-hazardous manifest form	Within 30 days of the off haul, Non-Profit Entity shall submit to the City's Authorized Representative and SAR group within City Public Works Department with copies of each completed non-hazardous waste manifest Form (with the landfills signature).	Information	
072	Div. 10 - Sec. 013545	1.3.A	HEALTH AND SAFETY CRITERIA - Submittals	Non-Profit Entity shall submit to the City the following Submittals no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier. 1. Site-specific Health and Safety Plan (HASP) prepared, signed and stamped by a Certified Industrial Hygienist (CIH) prepared in accordance with the requirements contained in this Section 01 35 45, CFR Title 29, CCR Title 8 and other applicable regulations, which shall cover all aspects and scope of Work. 2. Non-Profit Entity's Injury and Illness Prevention Programs (IIPP) and Code of Safe Practices (CSP), in accordance with with the requirements contained in this Section 01 35 45 and the California Code of Regulations (CCR), Title 8. 3. Templates for all safety forms and reports 4. Completed Activity Hazard Analysis (AHA) or Job Hazard Analysis (JHA) submitted with the HASP using the AHA/JHA template for all significant activities and tasks with a highrisk potential, describing the job steps, hazards associated with each job step, and the controls used to remove or minimize the associated hazards 5. SDS (Safety Data Sheet) for all chemicals and other hazardous materials used in the Work. 6. If Serpentine is present Non-Profit Entity shall have Cal/OSHA 40-hour asbestos training for the competent person overseeing Serpentine/ Naturally Occurring Asbestos (NOA) disturbance activities and managing personal air monitoring for asbestos.	Approval	
073	Div. 10 - Sec. 013545	1.3.B	HEALTH AND SAFETY CRITERIA - Experience Statement	Non-Profit Entity shall submit to the City no later than 10 days prior to the start of construction Work the qualifications and experience of the it's Project Safety Representative (PSR) as specified in this Section 01 35 45 – Health and Safety Criteria.	Review/Comment	
074	Div. 10 - Sec. 013545	1.5.H	HEALTH AND SAFETY CRITERIA - Health and Safety Plan	Furnish copies of all records of all health and safety audits, inspections, and reviews [48 hours after the audit, inspection or review.]	Information	
075	Div. 10 - Sec. 013545	1.13.E	HEALTH AND SAFETY CRITERIA - Personal Protective Equipment (PPE)	Where "Hot Work" is involved, a Hot Work permit must be submitted to the City as Regulator prior to commencing that Work.	Information	
076	Div. 10 - Sec. 013545	1.19.B	HEALTH AND SAFETY CRITERIA - Logs, Reports, and Recordkeeping	Non-Profit Entity shall submit Monthly project safety statistics, which shall include Project safety inspections, hours worked by Non-Profit Entity, OSHA Recordable Incidents, Incident Rates, Lost Work Day Cases, Total Project Lost Work Days, Days Away from Work Rate, First Aid Cases, and Property Damage Incidents, to City as part of the Monthly Progress Status Report.	Information	
077	Div. 10 - Sec. 013545	1.21.F	HEALTH AND SAFETY CRITERIA - Incident Reporting	Non-Profit Entity shall submit to the City a Preliminary Incident/Near Miss Investigation Report (PIR) within 24 hours of the incident or near miss. Non-Profit Entity shall submit a Final Incident/Near Miss Investigation Report (FIR) as soon as possible (generally within 48 hours) after incident or near miss. Non-Profit Entity shall not perform Work in the area or of a type that poses risks similar to those of the incident or near miss until a Corrective Action Report (CAR) is complete and submitted to the City.	Information	Applies if/when an incident and near miss incident ("near miss") occurs

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078	Div. 10 - Sec. 013545	1.23.B	HEALTH AND SAFETY CRITERIA - Project Safety Representative	If the City observes an unsafe Project Site condition or unsafe means or methods of performing Work, the City will inform Non-Profit Entity's Construction Manager or PSR, who shall take whatever actions Non-Profit Entity deems necessary to immediately remedy the unsafe Project Site condition or unsafe work practice, or unsafe means or methods in which the Work is performed. Non-Profit Entity shall within 24 hours of taking such remedial action submit a report to the [City 's Authorized Representative] describing the unsafe Project Site condition or work practice, and how Non-Profit Entity remedied that unsafe condition, unsafe work practice, or unsafe means and methods of performing the Work.	Information	
079	Div. 10 - Sec. 013550	2.1.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Documentation of Historical Resource	Non-Profit Entity shall submit to the City Planning Department for approval the scope of the documentation which shall include the following elements: 1. Measured Drawings 2. HABS/HALS-Level Photographs: 3. HABS/HALS Historical Report 4. Video Recordation 5. Softcover Book	Information	Informational cit City as review role is City Planning Dept. Each measure 1-5 has detailed requirements in TRs
080	Div. 10 - Sec. 013550	2.2.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Salvage Plan	Prior to any demolition that would remove character-defining features, Non-Profit Entity shall consult with the Planning Department as to whether any character-defining features that are proposed to be demolished may be salvaged, in whole or in part, during demolition.	Information	If required by City Planning Department. See 02 41 16 for Demolition Plan requirements.
081	Div. 10 - Sec. 013550	2.3.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Interpretation of the Historical Resource	Non-Profit Entity shall submit to the City Planning Department for approval an interpretive program plan prepared by a qualified consultant.	Information	
082	Div. 10 - Sec. 013550	2.4.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Oral Histories	Non-Profit Entity shall undertake an oral history project on the resource, understaken by a professional historian in conformance with the Oral History Association's Principles and Best Practices (https://www.oralhistory.org/principles-and-bestpractices-revised-2018/), and shall submit the completed oral history project to the San Francisco Public Library, Planning Department, and other interested historical institutions. The oral history project shall also be incorporated into the interpretative program (see Article 2.3).	Information	
083	Div. 10 - Sec. 013550	2.6.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Construction Management Plan	Non-Profit Entity shall submit to the City Planning Department the Construction Management Plan that shall include additional measures to further minimize disruptions to people walking and bicycling, transit, and emergency vehicles during construction. Additional measures include: 1. encourage carpooling, bicycle, walk, and transit access to the Project Site by construction workers 2. provide nearby residences and adjacent businesses with regularly updated information regarding project construction, including email notices distributed by NPE	Information	This CMP should be the same CMP as required by Division 1, but meeting the requirements in this Section for purposes of City Planning Department review
084	Div. 10 - Sec. 013550	2.7.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Driveway and Loading Operations Plan (DLOP)	Non-Profit Entity to submit a Driveway and Loading Operations Plan (DLOP) to the City Planning Department for approval. The intent of the DLOP is to reduce potential conflicts between passenger and freight loading and transit operations, and between passenger and freight loading activities and people walking and bicycling, and other vehicles in the project vicinity, as well as to maximize reliance on onsite facilities to accommodate freight loading demand.	Information	
085	Div. 10 - Sec. 013550	2.8.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Preconstruction Paleontological Evaluation and Monitoring Plan During Construction	Non-Profit Entity shall submit the Preconstruction Paleontological Monitoring Plan to the City Planning Department for approval.	Information	See 01 35 50, Section 3.2.A requirements
086	Div. 10 - Sec. 013550	3.2.A	ADDITIONAL ENVIRONMENTAL PROCEDURES - Paleontological Monitoring During Construction	Non-Profit Entity shall submit a final monitoring report and any data recovery report to the City Planning Department for approval prior to the certificate of occupancy.	Information	
087	Div. 10 - Sec. 013550	3.3.C&F-I	ADDITIONAL ENVIRONMENTAL PROCEDURES - Inadvertent Discovery of Paleontological Resources	C. Non-Profit Entity shall submit a Paleontological Resources worker awareness training form/affidavit to the City Planning Department within five (5) business days of conducting the training. F. If the qualified paleontologist determines that the discovery is not scientifically important, the qualified paleontologist shall document this conclusion in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). Non-Profit Entity shall submit the Paleontological Evaluation Letter to the City Planning Department for review within 30 calendar days of the discovery. G. If the qualified paleontologist determines that the discovery is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare and submit to the City Planning Department for approval a Paleontological Mitigation Program. H. If a Paleontological Mitigation Program is required, Non-Profit Entity shall prepare and submit a Paleontological Resources Report to the City Planning Department for review within 30 calendar days from consultation of the ground disturbing activities, or as negotiated with the City Planning Department. I. The paleontology report shall be submitted to City Planning Department for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with City Planning Department.	Information	Applies only in the event of the discovery of an unanticipated paleontological resource during construction.

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088	Div. 10 - Sec. 015000	1.13.D	TEMPORARY FACILITIES AND CONTROLS - Sign	Non-Profit Entity shall submit a mock-up of the Project sign in color, on bond paper, 11x17 size, to the City for approval prior to fabrication.	Information	
089	Div. 10 - Sec. 017450	1.4.G	MATERIAL REDUCTION AND RECOVERY PLAN - Demolition Debris Recovery Plan (DDRP)	Non-Profit Entity conducting full demolition of an existing structure must submit a Demolition Debris Recovery Plan (DDRP) to the San Francisco Environment Department (SFED). The DDRP must be submitted to and approved by SFE before the Department of Building Inspection will issue a Full Demolition Permit.	Information	
090	Div. 10 - Sec. 017450	1.5	MATERIAL REDUCTION AND RECOVERY PLAN - Material Reduction and Recovery Plan (MRRP)	Develop and submit a project specific MRRP for the Project through the Green Halo waste tracking program. The City will create a Green Halo project account for use by Non-Profit Entity.	Information	
091	Div. 10 - Sec. 024116	1.6	STRUCTURE DEMOLITION - Informational Submittals	Non-Profit Entity shall submit a number of informational submittals in addition to the Demolition Plan.	Information	
092	Div. 10 - Sec. 024116	1.7	STRUCTURE DEMOLITION - Demolition Plan	The Non-Profit Entity shall submit a complete Demolition Plan detailing procedures and sequence for removing the existing structures including all features necessary to remove the structure in a safe and controlled manner to insure stability of the structure at any given time.	Information	
093	Div. 10 - Sec. 028013	1.5.A	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	Non-Profit Entity shall submit copies of any notice of safety and environmental violations received from the regulatory agencies that they may have received in the last 20 years in the USA.	Information	
094	Div. 10 - Sec. 028013	1.5.B	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	Non-Profit Entity shall submit copies all the Minimum Qualification licensing requirements asked for in Section 01 35 44 Hazardous Building Materials Scope of Work.	Information	
095	Div. 10 - Sec. 028013	1.5.C	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	Non-Profit Entity shall submit proof of its five (5) years of hazardous materials abatement and/or removal experience asked for in Section 01 35 44 Hazardous Building Materials Scope of Work.	Information	
096	Div. 10 - Sec. 028013	1.5.D	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	Non-Profit Entity shall submit proof of its environmental training requirements asked for in Section 01 35 44 Hazardous Building Materials Scope of Work.	Information	
097	Div. 10 - Sec. 028013	1.5.E	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	For all demolition of buildings and structures, regardless of whether asbestos is present or not, Non-Profit Entity shall submit a copy of the BAAQMD-issued Approval Letter for Asbestos for Demolition, "[Job Number]" to the City's Authorized Representative prior to the start of Demolition. To obtain this letter, Non-Profit Entity shall submit an Asbestos Demolition Notification to the BAAQMD through their web-based Online Asbestos Notification System (http://learn.baaqmd.gov/course/view.php?id=4#section-5) at least ten (10) business days prior to the start of any demolition.	Information	
098	Div. 10 - Sec. 028013	1.5.F	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	As per Section 01 35 44 Hazardous Building Materials - Scope of Work, Non-Profit Entity shall submit a Hazardous Materials Management Plan (HMMP) with the following documentation listed below. The HMMP shall be submitted no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier and before commencement of demolition activities. No hazardous materials work may start without the HMMP reviewed and approved by the City.	Review/Comment	See Section 1.5, items J, K and L for specialty HMMP submittal requirements pertaining to lead-related Work, Copper Chromate Arsenate (CCA) treated wood related Work, and fluorescent light tube related Work, if applicable.
099	Div. 10 - Sec. 028013	1.5.H	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	As part of Non-Profit Entity's HMMP, Non-Profit Entity shall submit a Waste Management Plan (WMP). The WMP is Non-Profit Entity's comprehensive plan for waste management of hazardous and non-hazardous waste generated during the remediation work of this project.	Information	
100	Div. 10 - Sec. 028013	1.5.I	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	For Asbestos Containing Construction Materials (ACCM), or Asbestos Containing Material (ACM), as applicable by regulation, and as part of the Hazardous Materials Management Plan (HMMP) Non-Profit Entity shall submit a number of items (see drafting) for: 1. Pre-job Submittals 2. Periodic Submittals 3. Close-out Submittals	Information	
101	Div. 10 - Sec. 028013	1.5.J	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	For Lead - Related Work, and as part of the Hazardous Materials Management Plan (HMMP) Non-Profit Entity shall submit a number of items (see drafting).	Information	
102	Div. 10 - Sec. 028013	1.5.K	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	For Copper Chromate Arsenate (CCA) treated wood related Work, as part of the Hazardous Materials Management Plan (HMMP), Non-Profit Entity shall submit the a number of items (see drafting).	Information	
103	Div. 10 - Sec. 028013	1.5.L	HAZARDOUS BUILDING MATERIALS - REMEDIATION - Submittals	For fluorescent light tube related Work, as part of the Hazardous Materials Management Plan (HMMP), Non-Profit Entity shall submit the a number of items (see drafting).	Information	

Potrero Yard - Technical Requirements
Exhibit 18, Division 10 - Initial List of Submittals

Date of update: 16-Jan-26

ID Number	Division and Section Reference	Subsection Reference	Contract Data Item Title / Description	Required Submission	Submittal Action (Proprietary)	Notes/Comments
104	Div. 10 - Sec. 028013	3.3.F	Hazardous Building Materials Remediation - ASBESTOS ABATEMENT PREPARATION	1.c. (1) Establish a pressure differential of -0.025 inches w.g. with manometer reading records. Submit manometer readings daily or upon request.	Information	
105	Div. 10 - Sec. 028013	3.5.C (1-2)	Hazardous Building Materials Remediation - HAZARDOUS MATERIALS REMOVAL PROCEDURES	1. Mastic removal solvents, procedures, and equipment information submittals must be approved prior to floor coverings removal. 2. In flooring areas where a solvent-based mastic remover is to be applied, Non-Profit Entity shall use a low odor mastic remover. Non-Profit Entity shall submit the Safety Data Sheets (SDS) of the mastic remover it intends to use, for the review and approval of the oversight Consultant.	Information	
106	Div. 10 - Sec. 028013	3.5.T	Hazardous Building Materials Remediation - HAZARDOUS MATERIALS REMOVAL PROCEDURES	1. Where mechanical removal of surface coatings constitutes a Level II activity, provide power tools, to the extent feasible, with local HEPA exhaust or dust collector systems to capture the aerosolized lead. Non-Profit Entity shall submit, as part of the HMMP, a detailed work plan for any of the following activities: a. Removal with power blasting tools b. Removal with power washing c. Removal with Sodium Bicarbonate Blasting.	Information	
107	Div. 10 - Sec. 028110	1.3	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Submittals	A. The Contractor shall submit the required documents no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier, before any soil disturbing activity may begin. B. See drafting for detailed list of required submittals.	Information	
108	Div. 10 - Sec. 028110	1.4.B	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Pre-excavation Environmental Soil Profiling (Phase II Environmental Site Assessment)	If Non-Profit Entity seeks an exemption from the list of as needed environmental consultants, submit the name and qualifications of an environmental consultant that has done work in compliance with Article 21 of the City's Health Code (Maher Ordinance) for the City's approval.	Information	Applicable only for Phase II ESA work.
109	Div. 10 - Sec. 028110	1.4.E,N,O	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Pre-excavation Environmental Soil Profiling (Phase II Environmental Site Assessment)	E. Non-Profit Entity shall submit a Pre-Excavation Soil Profiling Sampling Plan for review and approval by both the City and San Francisco Department of Public Health prior to any drilling. N.2. Tabulate the testing results from the laboratory and submit it to the City. N.4. Prepare a draft and final report of this Environmental Site Assessment (Phase II) that is signed and stamped by both the principal and a registered professional engineer or geologist. O. Forward a digital copy of the draft environmental report for the City's review. After which, forward the final environmental report at least 5 days prior to excavation work. This report shall be prepared, stamped, and signed by a California licensed professional geologist or professional civil engineer.	Information	
110	Div. 10 - Sec. 028110	1.10.A	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Use of Non-Hazardous Waste Manifest for Class II Material or Lesser	For transportation and disposal of the non-Hazardous Waste, Non-Profit Entity shall initiate and fill out a non-Hazardous Waste profile form with the Class II/III landfill of its choosing. Then, submit this waste profile form to the City for its approval & signature. Next, Non-Profit Entity shall prepare a non-hazardous waste manifest form from the landfill. The non-hazardous waste manifest form shall be completed for each vehicle carrying excavated material classified as California Class II and Class III designated waste, or of a lesser waste classification. Non-Profit Entity shall submit the non-hazardous waste manifest form to the City for the Generator's signature at least 72 hours in advance of the day of the off-haul with an estimate of the number of loads scheduled for off-haul. See drafting for manifest form requirements.	Review/Comment	
111	Div. 10 - Sec. 028110	1.11.D,E,I	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Use of Non-Hazardous Waste Manifest for Class II Material or Lesser	D.1. For transportation and disposal of the Hazardous Waste, Non-Profit Entity shall initiate and fill out a Hazardous Waste profile form with the Class I landfill of its choosing. Then, it shall submit this Hazardous Waste profile form to the City for its approval and signature. Next, Non-Profit Entity shall provide and prepare the Hazardous Waste manifest for each shipment of Hazardous Wastes from the Project Site. E. Non-Profit Entity shall notify the City 72 hours prior to off-haul of all excavated material. If the manifest and other forms above are to be signed by the City during periods other than the hours stipulated above, Non-Profit Entity shall give an additional 72-hour advance notice to the City. I. Within 2 days of its return, Non-Profit Entity shall provide the City with the completed waste manifest. The completed waste manifest shall be certified by the receiver of the waste shipment, confirming that the shipment was received at the waste treatment or disposal facility designated in Non-Profit Entity's bid, and certifying the weight of the shipment.	Review/Comment	
112	Div. 10 - Sec. 028110	1.12.E,F	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Underground Storage Tank (UST) Closure Plan	E. Non-Profit Entity shall prepare an Underground Storage Tank (UST) Closure Plan in compliance with Article 21 of the San Francisco Health Code, if UST's will be removed. Non-Profit Entity shall only remove the underground tanks, pipes, and related appurtenances only in the presence of an inspector from the City's Department of Public Health, the City's Fire Department, and the City's Representative. F. Non-Profit Entity shall furnish documentation of the removal of an underground tank.	Information	
113	Div. 10 - Sec. 028110	3.2.B	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Reuse of Excavated Soils as Backfill	2. Native soils must meet sieve and chloride requirements. Non-Profit Entity shall submit sample results to the City prior to placement.	Information	
114	Div. 10 - Sec. 028110	3.3.A,B	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Reuse and Recycling of Excavated Soils at Other Facilities	A.3. Submit a letter of acceptance from the receiving facility or project. The letter shall indicate the volumes of soils accepted. Submit a value engineering calculation demonstrating cost savings to the City. Any savings that result from such reuse or recycle work will be a spilt 50/50 between [the City and Non-Profit Entity]. B.2. Submit a copy of the letter of acceptance and all records, including the financial statements for the value engineering saving prior to the approval of the reuse or recycling of these soils.	Information	
115	Div. 10 - Sec. 028110	3.4.C,D,R	ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS - Import Fill	C. In advance of hauling in and use of import soil (fill) Non-Profit Entity for each source of import soil (fill), shall provide the City the original source of where the import soil (fill) is coming from, the name of the laboratory used to analyze the soils, and the date of chemical analysis. Laboratory results shall not be over 6 months old. D. Non-Profit Entity shall provide chemical analytical results for each source and of the same soil classification type (based on the unified soil classification system) of import soil (fill) in accordance with the Recommended Fill Material Sampling Schedule stated in the Department of Toxic Substances Control (DTSC) Advisory Note for Clean Imported Material. R. Import soil (fill) shall not be brought on-site, prior to the City's approval of the analytical results. Analytical results submitted shall be referenced on the import fill spreadsheet submittal.	Information	

Division 2: Design Guidelines



A New Potrero Yard:

The San Francisco Municipal Transportation Agency Potrero Yard Modernization Project

Design Guidelines

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1 Introduction

1.1 Background

The Potrero Yard Modernization Project's primary objective is to replace the obsolete Potrero Yard — which was originally built in 1915 as a streetcar facility—with a single integrated Infrastructure Facility that includes a Housing and Commercial Component and has an exceptional building and streetscape design.[1]

The San Francisco Municipal Transportation Agency (SFMTA) has been coordinating with the San Francisco Planning Department (SF Planning) and other City agencies since 2016 on preliminary work for the Project and has undertaken a robust stakeholder engagement program to receive and incorporate feedback.

These Design Guidelines provide the architectural and urban design principles and standards to guide the development of the Facility. The Project's Technical Requirements including these Design Guidelines are based on the work completed to date and should be used to develop the Project design.

These Design Guidelines convey general policies and urban design principles to which the Project should adhere. The guidelines help establish a common understanding of design principles and standards, but are not intended to dictate solutions to these principles and standards. Instead,they define a range of appropriate responses to a variety of specific design issues. Where the Design Guidelines state "shall", the PPC must interpret this language as a prescriptive design requirement. Where the Design Guidelines state "should," the City is promoting specific urban design principles and an encouraged urban design approach.

The following pages include examples and illustrations. These are included to illustrate concepts described; they are not intended to suggest a specific design solution or aesthetic.

1 See Division 01 of the Technical Requirements

1.2 Project Site and Context

The Project Site, located at 2500 Mariposa Street in San Francisco, is owned by the City and County of San Francisco under the jurisdiction of the SFMTA. The approximately 4.4-acre property is bound by Bryant, 17th, Hampshire, and Mariposa Streets.

The site is located in the northeastern quadrant of the Mission District, an area that includes mixed-use zones and has a variety of light industrial uses as well as residential, retail, office, and other uses. York Street terminates at Mariposa Street on the south side of the site. Franklin Square, a city neighborhood park, is located across 17th Street on the north side of the site.

The existing bus yard and Mariposa Street are relatively flat, while the surrounding terrain slopes up to the northeast. The sidewalk at the northeast corner of the Site at 17th and Hampshire Streets is approximately 22 feet higher than the sidewalk at southwest corner of the site at Mariposa and Bryant Streets.[2]



Figure 1. Site Aerial Photograph. Numbered keys refer to Figures on the following page.

2 See Division 01 of the Technical Requirements

1.3 Zoning and CEQA

In 2024 the San Francisco Board of Supervisors adopted an ordinance designating the Project Site as the Potrero Yard Special Use District (SUD) and approving the Project's Final Environmental Impact Report (FEIR).

The Project shall comply with the SUD, the FEIR and the associated Project's Conditional Use Authorization and other City and County of San Francisco ordinances and regulations.



Figure 2. Franklin Square looking west.



Figure 3. Intersection of Bryant and Mariposa Streets looking southeast at KQED facility. Rendering by EHDD Architects.



Figure 4. Hampshire Street looking north.

2 Overall Design Guidelines

"Good urban design is characterized by the thoughtful orchestration of buildings, landscape, open space, and streets … San Francisco's architecture spans various eras and architectural styles, but its urban fabric maintains a high degree of continuity and consistency … [N]ew buildings have the responsibility to sensitively respond to their context and existing patterns of development while being of their moment." [3]

2.1 Vision

The SFMTA is committed to its mission to "connect San Francisco through a safe, equitable, and sustainable transportation system." [4] The Project demonstrates the SFMTA's commitment to providing zero-emission public transit, a safe and modern work environment for the SFMTA employees, and a new development with an exceptional building and streetscape design that enhances the Mission and Potrero neighborhoods.

The proposed Project vision should describe a single integrated Facility that incorporates the bus facility, residential and commercial uses, and infrastructure in a manner that makes it a great place for the building's occupants and bus yard operations, and a great asset for the community.

The vision should:

- Celebrate the bus yard as the Site's core use.
- Support a design that reflects the unique combination of bus, residential, and commercial uses and integrates them into a building that is contextual to its highly mixed-use neighborhood.
- Foster the placemaking and community-oriented activities in the building and streetscape design.

3 San Francisco Planning, Urban Design Guidelines, March 22, 2018, p 4.

4 https://www.sfmta.com/reports/sfmta-strategic-plan-2021-2024, accessed 09/08/2023

2.2 Design

The concept should be clear, and the design compelling and implemented with care and consistency.

The design should:

- Achieve the Project Objectives and fulfill the Project vision.[5]
- Enhance the skyline and surrounding context with a building massing, that although larger and taller than surrounding buildings provides visual interest, an architectural character that relates to surrounding neighborhood, and active building facades that have a pedestrian orientation that engages the community.
- Comply with the Project's Conditional Use Authorization including its special restrictions as well as the Project's Technical Requirements including these Design Guidelines.

5. See Division 01 of the Technical Requirements

3 Building Design Guidelines

3.1 Uses and Building Organization

The new Potrero Yard is planned to include the bus yard, residential, and possibly commercial uses such as retail and community serving storefront uses. The bus yard will occupy most of the building below 75 feet in height while the commercial uses may occupy select areas of the ground floor and the residential uses will occupy select areas of the building.

The Facility shall be designed to optimize modern and efficient bus operations in accordance with the Division 3 - Design Criteria Document and to incorporate residential and commercial uses and infrastructure into a cohesive building design. Each component shall be designed to meet its programmatic and other requirements and to function independently while being part of a harmonious building design.

For efficiency, identity, and wayfinding the bus, residential, and commercial uses should be organized in a simple and clear manner and should be easily distinguished from one another. For pedestrian safety, the residential entrances and commercial storefronts should be separated to the extent feasible from the bus entrances and exits.

To contribute to the urban context and complement surrounding uses, active ground-floor uses such as retail and community serving storefront uses are desired on Bryant and 17th Streets.

To optimize bus operations, incorporate residential and commercial uses, and enhance the urban context provide at a minimum:

- Bus and loading entrances and exits on Mariposa Street.
- At least one primary residential entrance and active ground-floor uses on Bryant Street.
- Active ground-floor uses on 17th Street.

3.2 Height, Bulk, and Open Space[6]

Consider how the building's massing is perceived from distant views such as from Dolores Park, Corona Heights, and Potrero Hill as well as from the close-in, street-level perspective of the surrounding neighborhood. Develop a clear design concept with a massing that provides visual interest, breaks down the building's height and bulk, and minimizes shadows on Franklin Square.



Figure 5. Different volumes breakdown building scale. Example: Five88, San Francisco, CA.



Figure 6. Different volumes breakdown building scale. Example: Avalon Hayes, San Francisco, CA.



Figure 7. Expressed stair and perforated metal facade provides visual interest. Example: Center Street Parking Garage, Berkeley, CA.

6 Building heights (the vertical distance by which a building rises above a point) shall be measured from the midpoint of the Mariposa Street as described in the SUD.

The building shall not exceed 150 feet in height.

The—up to 75 feet tall—bus yard may be built to the property line but it should not appear monolithic. Reduce the scale of this mass by breaking it down into several volumes with plane changes and recesses while avoiding inactive or hidden spaces. Consider using an entrance alcove or plaza centered on the York Street axis to modulate the Mariposa Street facade and respond to the end of York Street.

The building above 75 feet in height shall step back from the property line 10 to 20 feet on the south, west, and east frontages and 60 to 70 feet on the north frontage as described in the SUD to provide visual relief and mitigate shadows cast on Franklin Square.

The building above 115 feet in height shall have separate masses as described in the SUD.

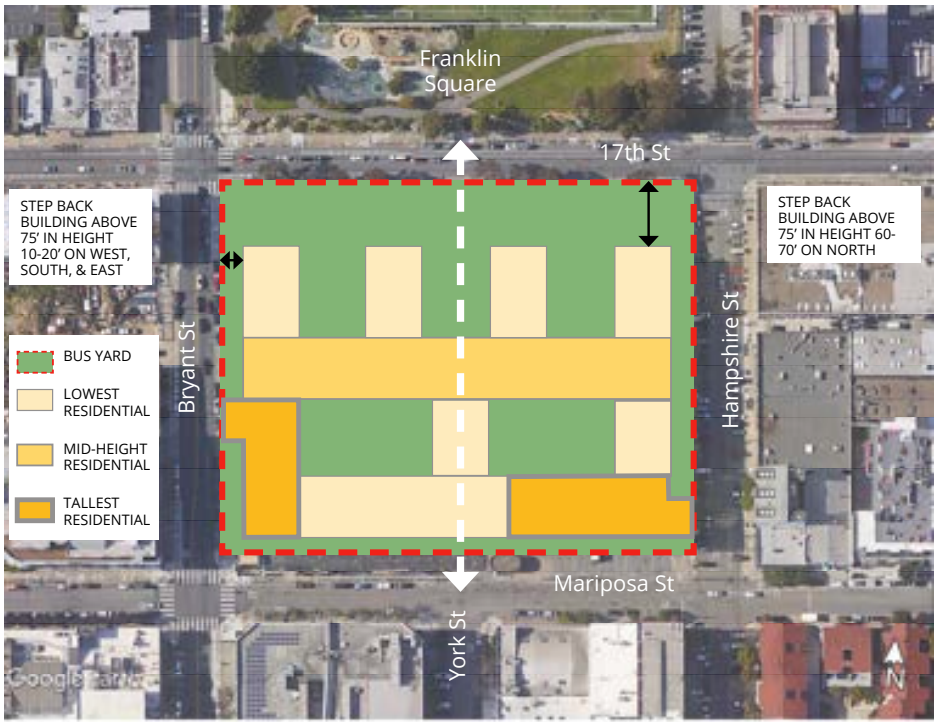


Figure 8. Diagram, which is based on the Reference Concept, illustrates the bulk requirements.

Open spaces should be attractive spaces for enjoying the outdoors, gathering, and recreation.

Provide separate open space areas that are easily accessible by the SFMTA employees and housing residents.



Figure 9. Housing open space with mix of seating areas. Example: Dr George W. Senior Residence & Senior Center, San Francisco, CA.



Figure 10. Open space with mix of private and shared spaces. Example: Avalon Dogpatch, San Francisco, CA.



Figure 11. Open space with mix of seating areas and landscaping. Example: Family House, San Francisco, CA.

3.3 Wall and Roof Treatment

The overall design should be a unified and cohesive composition that has a hierarchy and rhythm of architectural elements that have a pedestrian scale, provide visual interest, and are compatible with the surrounding context.

The design shall not have long expanses of flat, undifferentiated, or blank walls. Articulate the overall building massing into separate volumes and modulate these volumes with different materials and features such as recesses, bay windows, balconies, cornices, etc. The building articulation shall not rely on the use of surface applied elements, but use volumetric massing to create a hierarchy and rhythm that has a richness suitable to the surrounding neighborhood.

Differentiate bus, residential, and commercial components within the overall composition by the use of different materials, opening patterns, and/or features. Materials should be durable with an integral color such as concrete, masonry, glass, or factory finished metals.

Integrate wind mitigation measures into to the overall design.

The color scheme should be unified and enduring, but not bland. For example the bus yard accents could use the SFMTA and Muni color palette and the residential accents could reflect the Mission neighborhood's rich and varied color palette.

Design all facades and roofs with care and consistency. Consider approaches, such as views into the bus yard and public art installations, to supplement active ground-floor uses and provide visual interest on all four facades, including the Hampshire Street facade.



Figure 12. Unified composition with hierarchy and rhythm of architectural elements. Example: 1100 Ocean Avenue, San Francisco, CA.



Figure 13. Variations of materials and planes provides visual interest. Example: Drs. Julian + Raye Richardson Apartments, San Francisco, CA.



Figure 14. Bay window tile color derived from local color accents. Example: La Fenix at 1950 Mission, San Francisco, CA.

Also consider ways to treat the building corners, especially the corners on Bryant Street. For example a commercial use at the development's northwest corner at Bryant and 17th Streets could activate this location and link active uses on Bryant and Mariposa Streets.

Provide intentional facade terminations at the bus and the residential roof lines and use these to reinforce the building massing and design intent. Use bus yard facade terminations to help define the predominant streetwalls.

The Project roofs will be visible from near and far vantage points and should be considered the "fifth facade". Both occupied open spaces and unoccupied roofs should be designed with care. Consolidate rooftop equipment in fully screened areas and integrate these into the overall design.



Figure 15. Stacking elements creates a rhythm and glazed ground floor engaging entry. Example: 1601 Mariposa St., San Francisco, CA.



Figure 16. Mix of rich materials and elements creates visual interest and configuration a strong indoor-outdoor connection. Example: Five88 Mission Bay Blvd., San Francisco, CA.



Figure 17. Porous facade. Example: 1630 Third St Parking Structure, San Francisco, CA.

3.4 Lighting, Signage, and Public Art

Carefully integrate lighting, signage, public art, and other elements into the building design.

Lighting should be provided to support pedestrian comfort and safety along sidewalks and throughout open spaces. Lighting should provide general illumination and highlight pedestrian entrances, storefronts, and bus entrances and exits. Lighting should be shielded to mitigate light pollution.

Signage should be provided to aid in way-finding, but it should not be the primary means to identify entrances. Signage should be integrated into entrances and storefronts, and be made of high quality and durable materials. Rectangular internally illuminated signs surface mounted to the building walls are not allowed. Consider ways to creatively incorporate the SFMTA and Muni logos and color palettes into the bus yard signage.

The Project has a public art requirement. While developing the design concept, consider opportunities to incorporate public art that celebrates—without being kitschy—the SFMTA's bus operations and the neighborhood's rich history and arts community as well as other ideas that the San Francisco Arts Commission (SFAC) may identify. Work with the SFAC and the artist(s) to thoughtfully integrate public art into the Facility and/or streetscape design.



Figure 18. Lighting and signage integrated into entrance design. Example: Family House, San Francisco, CA.



Figure 19. Art mural. Example: Vida Building, San Francisco, CA.



Figure 20. Art installation. Example: Kinetic Umbrellas, Project Artaud, San Francisco, CA.

3.5 Ground Floor Uses

The bus yard, residential, and commercial entrances should be located as described in Section 3.1 and should be easily seen and distinguished from one another.

- As described in the Better Streets Plan and Guidelines (www.sfbetterstreets.org) the design of the ground floor uses and right-of-way, including allowance of curb cuts and placement of utilities, has significant impact on the street environment. Decisions regarding street design must consider and prioritize pedestrian safety, enjoyment, and comfort. Reducing driveways reduces the number of conflict points between pedestrians and vehicles and can dramatically improve safety. Maximum widths of industrial curb cuts serving two-way traffic should be 32 feet, though exceptions are permissible if bus or delivery vehicle turning templates require additional width due to the adjacent public street dimension. Where possible, curb cuts should be separated by a minimum dimension of 5' to provide safe waiting space for pedestrians. Vehicular entrances and exits should be kept to the minimum required for efficient and safe operations and should have a warning system. No more than four curb cuts with a total width of 230' shall be allowed on Mariposa Street, and less is desired. In addition one 32 foot wide curb cut for a second floor emergency bus exit shall be allowed.
- Bus and loading vehicular entrances and exits should have a warning system.
- The bus yard pedestrian entrance for the SFMTA employees and visitors should be easily identified to foster identity and way-finding.
- Residential entrance lobbies should be inviting and expressed prominently at the building exterior to foster identity and way-finding.
- Commercial spaces should have inviting storefronts with clear or lightly tinted glazing, high ceilings, and layouts that are flexible to support retail shops, cafes, small scale PDR, and/or community services such arts or educational spaces. The storefront entrances should be at grade and engage the sidewalk so that activity can spill out onto the sidewalk to support typical operations, special events and circumstances such as Covid-19.
- Pedestrian entrances should have weather protection and be well illuminated.
- Emergency exit alcoves should be integrated with entrance and storefront alcoves where possible. Any equipment rooms that must front the sidewalk should be integrated into the overall design.
- Where the bus yard fronts the sidewalk, provide views into the bus yard for visual interest.



Figure 21. Bryant Street frontage illustration prepared for community engagement planning workshop to show possible Project attributes.

4 Streetscape Design Guidelines

The SFMTA led the passage of the The San Francisco Better Streets Plan which aims to improve the quality and character of sidewalks and streets and make them more usable, greener, and safer for all modes of travel.[7]

The plan identifies Bryant, 17th, Hampshire, and Mariposa Streets as mixed-use streets that should have 15 foot wide sidewalks with (building) frontage, through-way, furnishing and (curb) edge zones. In addition 17th Street, which has a bike lane, is a green connection street that links parks, the waterfront, and open space and Hampshire Street is used by bicyclists as an alternative to the busier Bryant Street.[8]

As the City's policy leader and implementer of award-winning streetscapes, the SFMTA is committed to excellent streetscape design. The streetscape should be an exemplar of design that:

- Enhances the Project vision and building design and supports and augments active ground-floor uses.
- Supports SFMTA fleet usage and fosters bicycle and pedestrian activity and safety.
- Integrates sidewalk elements to create a safe, convenient, and inviting public realm



Figure 22. Streetscape zones. Example: San Francisco, CA.


Figure 23. Streetscape with cafe seating in frontage and furnishings zones. Example: San Francisco, CA.


Figure 24. Streetscape with bike racks, street trees, and parking meters integrated in furniture zone . Examples: San Francisco, CA.

7 Mayor Gavin Newsom's introductory letter to the Better Streets Plan: https://sfplanning.org/sites/default/files/archives/Better-Streets/docs/Better-Streets-Plan_Final-Adopted-10-7-2010.pdf, accessed 09/08/2023

8 Planning Department's Green Connections Final Plan: https://sfplanning.org/project/green-connections, accessed 09/08/2023

11 SF Better Streets | A guide to making street improvements in San Francisco: https://www.sfbetterstreets.org/, accessed 09/08/2023

and needed outdoor space due to Covid-19.

Provide at least one bike parking area and one seating area on each frontage. Locate these in relation to the bus yard and residential entrances and the commercial storefronts and to maximize physical comfort considering solar orientation, wind, and noise.

Provide, in accordance with the San Francisco Street Design Advisory Team (SDAT) recommendations, bulb outs, pedestrian ramps, residential loading zones for pick-up/drop-off and package delivery, pedestrian lighting to enhance pedestrian access and safety.

Preserve healthy mature street trees where possible and provide new street trees that will have minimal impact on the trolley bus overhead contact system (OCS) where appropriate.

Integrate stormwater management into the streetscape and support water and local biodiversity conservation by using San Francisco Bay Area native plant species.

Consider opportunities to integrate public art into the streetscape.

Carefully design sidewalks to reduce clutter and integrate signage, lighting, bike racks, seating, landscaping, stormwater management, and possible public art. Consolidate OCS, lighting, and signage poles or replace OCS poles with catenary attached to the building.v



Figure 26. Parklet with planter that provides a buffer from street traffic. Example: San Francisco, CA.



Figure 27. Public art bench. Example: Chinatown, San Francisco, CA.



Figure 25. Special Tree Grates. Example: Valencia Street, San Francisco, CA.

The New Potrero Yard Design Guidelines

The SFMTA is committed to encouraging sustainable modes of travel. The Project will include a robust Transit Demand Management (TDM) program. Transit Demand Management (TDM) elements that support active (walking and biking) and high occupancy vehicle transportation (bus, shuttle, van pool) use should be located for easy access and use and integrated into the design, rather than added as an afterthought.



Figure 29. Bike Storage, Example: Ashby BART Station



Figure 28. Mariposa Street frontage illustration prepared for community engagement planning workshop to show possible Project attributes.

Division 3: Design Criteria Document



Potrero Yard: 3-Level Bus Facility Design Criteria Document

San Francisco Municipal Transportation Agency

January 2026

SFMTA

INTRODUCTION

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Appendix C - SFPUC Application for Electrical Service (For Reference)
Appendix D - Traction Power Feeder Map
Appendix E - Sample Route Schedules
Appendix F - Security Sensitive Information Process Regarding Traction Power Standard Specifications
Appendix G - PG&E System Impact Study Report for Mixed Use Service Application (For Reference)
Appendix H - SDAT Review Letter 1.19.2023 (For Reference)
Appendix I - Geotechnical Baseline Report

ABBREVIATIONS

Abbreviations

A	=	Amperes
AABC	=	Associate Air Balance Council
AAMA	=	American Architectural Manufacturer Association
AC	=	Air Conditioning
AC/DC	=	Alternate Current/Direct Current
ACS	=	Access Control Server
ADA	=	American Disabilities Act
AEP	=	American Electric Power
AFF	=	Above Finished Floor
AHJ	=	Authority Having Jurisdiction
AHRI	=	Air conditioning Heating & Refrigeration Institute
AISC	=	American Institute of Steel Construction
AISI	=	American Iron & Steel Institute
Alum	=	Aluminum
AMCA	=	Air Movement & Control Association
ANSI	=	American National Standards Institute
ANSI/ AWC	=	American National Standards Institute/ American Wood Council
ANSI/ IWCA	=	American National Standards Institute/ International Window Cleaning Association
ASCE	=	American Society of Civil Engineers
ASCE/ SEI	=	American Society of Civil Engineers/ Structural Engineering Institute
ASHRAE	=	American Society of Heating and Refrigeration Association of Engineers
ASJ	=	All Service Jacket
ASME	=	American Society of Mechanical Engineer
ASTM	=	American Society for Testing & Materials
ATF	=	Automatic Transmission Fluid
AWWA	=	American Water Works Association
BACnet	=	Building Automation and Control Network
BAS	=	Building Automation System
BEB	=	Battery Electric Buses
BICSI	=	Building Industry Consulting Service International
BRBF	=	Buckling Restrained Brace Frame
Btu	=	British Thermal Unit
CA	=	Compressed Air
CAL Green	=	California Green Building Standards Code
CAT	=	Collision Avoidance Technologies
CBC	=	California Building Code
CCTV	=	Closed Circuit Television
CE	=	Computer Equipment
CEC	=	California Energy Code
CF	=	Contractor Furnished
CFC	=	California Fire Code
CFM	=	Cubic Feet Per Minute
CFR	=	Code of Federal Regulations
CG	=	Chassis Grease
CI	=	Contractor Installed
Circ	=	Circulation
CMC	=	California Mechanical Code
CMU	=	Concrete Masonry Unit
CO	=	Carbon Monoxide
CO2	=	Carbon Dioxide
COMM	=	Communication
CPAA	=	Concrete Polishing Association of America
CPC	=	California Plumbing Code
CPVC	=	Chlorinated Polyvinyl Chloride
C.R.	=	Changing Room
CSA	=	Civil Structural Architectural
CWA	=	Common Work Area
DASMA	=	Door and Access Systems Manufacturers Association
dB(A)	=	Decibels, A-Weighted
DC	=	Direct Current
DCM	=	Design and Construction Management
DCOF	=	Dynamic Coefficient of Friction
DCD	=	Design Criteria Document
DDC	=	Direct Digital Controls
DEF	=	Diesel Exhaust Fluid
Demo	=	Demolition
Div	=	Division
DX	=	Direct Expansion
EC	=	Engine Coolant
EFCO	=	Economy Forms Company
Elec	=	Electrical
EMCS	=	Energy Management Control System
EMS	=	Energy Management System
EMT	=	Electrical Metallic Tubing
EO	=	Engine Oil
EPDM	=	Ethylene Propylene Diene Monomer
ESFR	=	Early Suppression Fast Response
EV	=	Electric Vehicle
fc	=	Foot Candle
f'm	=	Compressive Strength
F/Btu	=	Fahrenheit/British thermal unit
FACP	=	Fire Alarm Control Panel
FDC	=	Fire Department Connection
FEVE	=	Fluoroethylene Vinly Ether
FPS	=	Feet Per Second
fy	=	Force to Yield
GFI	=	Ground Fault Interrupter
GO	=	Gear Oil
GPF	=	Gallons Per Flush
GPM	=	Gallons Per Minute
GSF	=	Gross Square Feet (within the exterior face of exterior walls)
GS6	=	General Schedule 6 Form
H2	=	Hydrogen
H2O	=	Water
HCFC	=	Hydrochlorofluorocarbon
HDPE	=	High Density Polyethylene
HET	=	High Efficiency Toilet
HFHC	=	Hydrochlorofluorocarbons
HO	=	Hydraulic Oil
HP	=	Horse Power
HPC	=	High Performance Computing
HVAC	=	Heating, Ventilation and Air Conditioning
IBC	=	International Building Code
ICC	=	International Code Council
IFC	=	Industry Foundation Classes
IGMAC	=	Insulating Glass Manufacturers Association of Canada
IGCC	=	Insulating Glass Certification Council
IDF	=	Intermediate distribution frame
IES	=	Illuminating Engineering Society
IPLV	=	Integrated Part Load Value
J-STD	=	Joint Standard

ABBREVIATIONS

Abbreviation		
K	=	1,000 Pounds
ksi	=	Kilopound per square inch
kVA	=	kiloVolt Ampere
LAN	=	Local Area Network
lb	=	Pound
LCC	=	Low Cost Carriers
LED	=	Light Emitting Diode
LEED	=	Leadership in Energy and Environmental Design
LEL	=	Lower Limit Explosive Limit
LLWA	=	Lower Level Work Area
LSIG	=	Long time, short time, instantaneous, ground
Max	=	Maximum
MaP	=	Maximum Performance
MCB	=	Motor Coach Buses
MDF	=	Main Distribution Frame
Mech	=	Mechanical
MERV	=	Minimum Efficiency Reporting Value
MIG	=	Metal Inert Gas
Min	=	Minimum
MME	=	MUNI Metro East
MOH	=	Friedrich Mohs scale of mineral hardness
MPOE	=	Main Point of Entry
MR	=	Low temp liquid, emulson, vapor, permeable air membrane
MRO	=	Maintenance, Repair, & Operations
MSS	=	Manufacturers Standardization Society
MTC	=	Main Telecommunication Center
MS/TP	=	Master Slave/Token Passing
MUD	=	Mixed Use Development
MW	=	Megawatt
NEBB	=	National Environmental Balance Bureau
NEC	=	National Electric Code
NEMA	=	National Electrical Manufacturers Association
NFPA	=	National Fire Protection Association
NFRC	=	National Fenestration Rating Council
NO2	=	Nitrogen Dioxide
NPE	=	Non-Profit Entity
NRCA	=	National Resources Conservation Authority
OC	=	Overhead Cabinet
OCS	=	Overhead Contact System
OF	=	Owner Furnished (same as City Furnished, in all instances)
OI	=	Owner Installed (same as City Installed, in all instances)
OSHA	=	Occupational Safety and Health
OS&Y	=	Outside Stem & Yoke
PA	=	Public Address
PC	=	Personal Computers
PCI	=	Pre-Construction Information
PDA	=	Preliminary Development Agreement
PDI	=	Plumbing and Drainage Institute
PDI-WH	=	Plumbing and Drainage Institute-Wall Hydrant
PDR	=	Production Distribution Repair
PES	=	Portable Equipment Storage
PLC	=	Programmable Logic Controller
PM	=	Preventive Maintenance
PPG	=	Pittsburgh Plate Glass Company
PROM	=	Programmable Read-Only Memory
PS	=	Power Steering
psf	=	pounds per square foot
PSI	=	Pounds Per Square Inch
PSIG	=	Pounds Per Square Inch Gauge
PVC	=	Polyvinyl Chloride
PVDF	=	Polyvinylidene Fluoride
RDC	=	Reference Design Concept
RFID	=	Radio-Frequency Identification
RFP	=	Request For Proposal
RLWP	=	Roof Level Work Platform
SCADA	=	Supervisory Control and Data Acquisition
SDI	=	Steel Door Institute
sf	=	Square Feet
SFFD	=	San Francisco Fire Department
SFPUC	=	San Francisco Public Utilities Commission
SGCC	=	Safety Glazing Certification Council
SHGC	=	Solar Heat Gain Coefficient
SNMP	=	Simple Network Management Protocol
STC	=	Sound Transmission Class
Struc	=	Structural
TABB	=	Testing, Adjusting, and Balancing Bureau
TB	=	Trolley Buses
TBD	=	To Be Determined
TBS	=	ToolBox Storage
TC	=	Task Chair
TCNA	=	Tile Council of North America
TCP/IP	=	Transmission Control Protocol/Internet Protocol
TIA/EIA	=	Telecommunication Industries Association/ Electronic Industries Alliance
TIG	=	Tungsten Inert Gas
TMS	=	The Masonry Society
TPO	=	Thermoplastic Polyolefin
TPSS	=	Traction Power Substation
TR/TC	=	Telecommunications Room/ Telecommunications Closet
Typ	=	Typical
UC	=	Used Coolant
UL	=	Underwriters Laboratories
UNO	=	Unless Noted Otherwise
ULWP	=	Upper Level Work Platform
UO	=	Used Oil
UPS	=	Uninterruptible Power Supply
USGBC	=	United States Green Building Council
UV	=	Ultraviolet
V	=	Volts, Alternating Current
VAV	=	Variable Air Volume
VCT	=	Vinyl Composite Tile
VFD	=	Variable Frequency Drive
VLAN	=	Virtual Local Area Network
VLM	=	Vehicle Lift Module
VOC	=	Volatile Organic Compound
VSS	=	Video Surveillance System
W	=	Water
WAN	=	Wide Area Network
WC	=	Water Closet
WDMA	=	Window and Door Manufacturers Association
wg	=	Water gauge
WWF	=	Windshield Washer Fluid

SECTION 1 - INTRODUCTION

1.0 INTRODUCTION

The San Francisco Municipal Transportation Agency (SFMTA) has engaged a consultant team led by Hatch Associates Consultants (the Hatch Team) to analyze the feasibility of developing non-transit uses above or adjacent to the SFMTA's bus maintenance and storage yards. The Potrero Yard Bus Facility Design Criteria Document has initially focused on joint development opportunities at the Potrero Yard, which will be the first of the SFMTA's older bus yards to be rebuilt.

SFMTA has directed that HCC joint development at Potrero Yard must not impede the core transit function of the facility if rebuilt. The integration of joint development with the reconstruction of the Potrero Yard has been an integral part of these activities and also for the Project's procurement.

Potrero Yard (located at 2500 Mariposa Street in the Mission District and opened in 1915) currently serves as one of two SFMTA Electric Trolley Bus (Trolley Bus) Operations and Maintenance facilities. The existing two-level facility includes bus parking, service (fare recovery and wash lane), and a ten-lane maintenance facility at grade, accessed via Mariposa Street. The second level includes bus operations space, non-revenue vehicle parking, trolley bus parking, a tire bay/shop, and a body bay/shop accessed via 17th Street. The Potrero Yard Modernization Project will demolish the existing facility and construct a new, expanded bus maintenance and operations facility on the site. The new facility will serve the existing Trolley Bus Fleet and will be the SFMTA's first purpose-build battery-electric bus facility. The facility will also house the SFMTA's transit operator training classrooms, as well as Street Operations, the SFMTA's street incident response team.

The Design Criteria Document prescribes technical, functional, and performance requirements for the Potrero Yard Bus Yard Component's building systems including architectural, civil, structural, equipment, mechanical, electrical, and plumbing. This document is attached to the Potrero Yard Division 3 (*Design Criteria Document*) of the Technical Requirements. The Design Criteria Document was prepared by transit design specialist HDR | Maintenance Design Group (HDR | MDG) in close coordination with urban design specialist SITELAB Urban Studio, transit operations specialist CHS, and real estate advisory firm Hatch (the Hatch team). Technical building and building system requirements for the Housing and Commercial Component are not addressed here, but can be found in Divisions 4 (*Design Criteria for the Housing and Commercial Component*) and Division 6 (*Program for the Housing and Commercial Component*) of the Technical Requirements.

1.1 Sources Consulted

The Bus Facility Design Criteria Document is informed by discussions with the SFMTA subject matter experts during the Potrero Yard Design Charrette held on January 31 through February 2, 2018 as well as the Hatch Team's review of the following studies, reports, and analyses prepared by or on behalf of the SFMTA.

- SFMTA Facilities Framework Addendum (10/6/17)
- SFMTA Master Plan Report (7/28/17)
- SFMTA Transit Fleet Management Plan (2014, amended 2017)
- SFMTA Zero Emission Bus Rollout Plan (2021 draft)

Follow up in-person interviews with the SFMTA also took place in September 2018 and December 2018, with a conference call also held in November 2018. Between 2018 and publication in 2021, SFMTA staff were consistently consulted to finalize details and review drafts of this document.

1.2 Design

Tables 1.A and 1.B identify the quantitative capacity of bus fleet vehicles and square footage summaries. All required bus storage programming numbers are based on a design capacity representing the bus storage number the facility can accommodate using parking spaces and several (approximately half) of maintenance bays. The SFMTA refers to this design capacity methodology as "planning capacity." Table 1.A lists the 2030 programming bus capacity numbers. Table 1.B contains the 2030 overall programming square footage numbers.

The following is a list of Design Principles established during planning:

- Minimize impact of bus circulation on the neighborhood.
- Provide improved efficiency and seismic performance.
- Promote mixing and socializing across divisions.
- Provide well laid out Dispatch and check-in spaces.
- Facilitate good relationship between operators, supervisor, and dispatch spaces.
- Enhance ability for on-time pull-out.
- Provide flexibility in bus parking and crush capacity.
- Enhance good communication between functional areas.

SECTION 1 - INTRODUCTION

TABLE 1.A - **POTRERO YARD PROGRAM SUMMERY AT SUBSTANTIAL COMPLETION OF THE INFRASTRUCTURE FACILITY***

	TROLLEY BUS		TOTAL	MAINT.	BUS : BAY
	40'	60'	BUSES	BAYS	RATIO***
Potrero Bus Yard	153	93	246	13	19

*All figures are planning capacities and represent the fleet mix at Potrero Yard when the Yard is completed in 2026. The fleet mix will ultimately transition to 100 percent battery electric.

***Ratio is total for all Repair Bays and Preventive Maintenance Bays based on a ratio of 17:1. Does not include speciality bays like tire bay, body bay, and chassis wash bay.

TABLE 1.B - REFERENCE DESIGN CONCEPT PROGRAM SUMMARY AREA (SF)

	PARKING	MAINT. BAY/SHOPS	SERVICE & CLEAN	PARTS	MAINT. ADMIN	OPS.	TRANSIT SVCS.	SHARED	TRAINING	BODY/ PAINT	TOTAL
Potrero Bus Yard	299,215	48,252	10,921	8,806	9,423	14,017	8,519	15,390	17,819	---	432,362

- Efficient and safe movements of vehicle and pedestrians.
- Incorporate daylight as much as possible given the site and building constraints.
- Create good line of signt from Dispatch to pull-in and pull-out of buses, including design options such as:
  - ✓ Windows with direct or indirect views of interior bus operations.
  - ✓ Use of technology such as cameras for improved security and more efficient operations.
- Utilize durable, easy to clean casework.
- Provide adequate lockers and space – well lighted and ample clearance between lockers.
- Provide a facility that is welcoming, uncluttered, appreciated, presents a discrete public face, and instills employee pride and ownership

1.3 Report Overview

This Bus Facility Design Criteria Document consists of five sections, which are described briefly here.

Section One - Introduction. This section describes the background of the project and provides an overview of the Bus Facility Design Criteria Document.

Section Two - Space Needs Program. This section presents a detailed listing of space requirements for Parking, Bays and Shops, Service and Clean, Parts, Maintenance, Operations, Shared Areas, and Training.

Programmed spaces are further defined by their quantity, area, and any remarks significant to design. Information began and then was updated using information from the 2017 SFMTA Facilities Framework Addendum, published in October 2017.

Section Three - Design Criteria Narrative. This is the first of two design criteria sections. The Design Criteria Narrative presents a narrative version of the functional.

Section Four - Performance Requirements. This section describes the requirements per design discipline.

Section Five - Requirements for Bus Yard Component Space Modules. This is the second of two design criteria sections. This section presents a graphic version of the functional and performance requirements and is organized by functional space as presented in the Space Needs Program.

Appendices:
Appendix A: Maintenance Equipment Manual
Appendix B: SFMTA OCS Design Criteria
Appendix C: SFPUC Application for Electrical Service (For Reference)
Appendix D: Traction Power Feeder Map
Appendix E: Sample Route Schedules
Appendix F: Security Sensitive Information Process Regarding Traction Power Standard Specifications
Appendix G: PG&E System Impact Study Report for Mixed Use Service Application (For Reference)
Appendix H: SDAT Review Letter 1.19.2023 (For Reference)
Appendix I: Geotechnical Baseline Report

The Design Team prepared the Design Criteria Document, Maintenance Equipment Manual, Building Drawings, and Equipment Drawings to Reference Design Concept prepared by the SFMTA prior to the Project's procurement, CEQA Project Description, and the basis for the programmatic and functional requirements for the Project's procurement. The Maintenance Equipment Manual is included as Appendix A in this Design Criteria Document.

1.4 Acknowledgments

The Hatch Team would like to acknowledge the efforts and contribution of the SFMTA staff members during the development of the design charrette process and input to matters related to the development of the Bus Facility Design Criteria Document. This continued enthusiastic participation and dedication will ensure the realization of the Potrero Yard program.

SECTION 2 - SPACE NEEDS PROGRAM

2.0 INTRODUCTION

This section presents the Space Needs Program for the Potrero Yard. The Space Needs Program defines the minimum space requirements for efficient operations. The program is summarized at the end of this section, and includes projected square footage needs for building and exterior areas.

All required programming numbers are planning, not crush, capacity. The Space Needs Program was used as the basis to develop the Reference Design Concept that, which is Document 1 (*Reference Design Concept)* of the Reference Documents.

All spaces in the proposed bus yard concept should be within 10% +/- of the programmed square footages listed in Table 2.E.

2.1 Staff Summary

Minimum facility staffing levels that are either required or planned by the SFMTA are crucial to planning efforts when determining the size of support facilities and developing occupancy levels. Table 2.A shows the summary of facility staffing levels.

2.2 Vehicle Parking Summary

The following Table 2.B is the summary of vehicles.

TABLE 2.A - POTRERO YARD PROGRAM STAFFING SUMMARY AT SUBSTANTIAL COMPLETION OF THE INFRASTRUCTURE FACILITY*

Function	Potrero Staff
Bays & Shops	10
Service & Clean	37
Parts	21
Maintenance - Administration	10
Mechanics & Technicians	90
Operations - Administration	22
Operators	684
Transit Services	192
Shared	1
Training	63
TOTAL	**1,130**

TABLE 2.B - POTRERO YARD PROGRAM VEHICLE SUMMARY AT SUBSTANTIAL COMPLETION OF THE INFRASTRUCTURE FACILITY*

Function	Scenario 1 Potrero Vehicles
40' Bus	153
60' Bus	93
Large Non-Rev Vehicle	5
Standard Non-Rev Vehicle	84
Transit Services	68
TOTAL	**403**

*All figures are planning capacities
**An estimated 10-20 NRV spaces may be considered for BYC Transportation Demand Management programming

[1] The square footages in the Drawing Package may not match exactly those of the Program, but the Program has guided the formulation of the Drawing Package.

SECTION 2 - SPACE NEEDS PROGRAM

2.3 Planning Ratio

Table 2.C lists only the key/major planning ratios. For a complete list of the square footages for each type of use, refer to the Space Needs Program in Table 2.E.

TABLE 2.C - PLANNING RATIO

SPACE	RATIO OR SPACE STANDARDS*
Bus Repair Bay (20’ x 75’)	1 bay for every 20 buses to be maintained
Preventive Maintenance (PM) Bay (20’ x 75’)	1 bay for every 50 buses to be maintained
Tire Bay (20’ x 75’)	1 bay for every 125 buses to be maintained
Minor Body Repair Bay (20’ x 75’)	1 per facility
Chassis Wash Bay (25’ x 75’)	1 bay for every 200 buses to be maintained
Service Position (20’ x 70’)	1 bay for every 75 buses
Bus Washer (20’ x 100’)	1 bay for every 150 buses
Water Reclamation (15’ x 60’)	1 per facility, handles multiple bus washers
Tool Box Storage	24 square feet (sf) per Maintenance Technician
Tire Storage	5 sf per bus for 1 tire per bus
Parts Storage	20 sf per bus with High Density Storage System

*For Potrero Yard, all bays are designed to be used by both 40’ and 60’ buses.

SECTION 2 - SPACE NEEDS PROGRAM

2.4 Space Standards

Space standards were applied to the Space Needs Program and generally apply to the Offices, Shops, Bays, and Vehicle Parking Areas. Area requirements in Shops and Storage Areas were derived from functional requirements and equipment space needs. The space standards listed are the minimum required space square footages.The space standards listed in Table 2.D were utilized to develop the facility program and overall area requirements. The space standards are based on functional needs and requirements.

TABLE 2.D - SPACE STANDARDS

AREA	SIZE
SHOPS & STORAGE:	
Common Work Area	500 sf
Trolley Bus Electronics Shop	1,000 sf
Portable Equipment Storage	600 sf
Tool Storage	150 sf
Tire Shop	600 sf
Lube Room	400-600 sf
Compressor Room	200 sf
Bench Shop	300 sf
Cleaning Equipment Storage	200 sf
Battery Storage	200-300 sf
Parts Window	200 sf
Shipping and Receiving	600 sf
Loading Dock	900 sf (15 x 60)
PARKING:	
40’ Transit Bus	540 sf (12 x 45)
60’ Bus	780 sf (12 x 65)
Large Non- Revenue Vehicles	420 sf (12 x 35)
Standard Non-Revenue Vehicles	162 sf (9 x 18)
CIRCULATION:	
Aisles for 90 degrees turns	65’ turning into parking lanes or service
Aisles for 90 degrees turns	70’ turning into maintenance bays
Bypass Lane	20’ wide
One Way Ramp	15’ wide
Forklift Circulation	10’ wide

SECTION 2 - SPACE NEEDS PROGRAM

2.5 Circulation Factors

Circulation factors have been applied to interior building spaces; exterior circulation is unnecessary as the Potrero Yard will occupy the entire site. The space requirements shown for each function are net usable area.

2.6 Interior or Building Circulation

Circulation factors are applied to the program as a percentage of the total building square footage. These factors account for miscellaneous building spaces such as hallways, stairwells, wall thickness, structure (Circ/Mech/Elec/Struc - Net:Gross), and access requirements. The following is a list of the minimum required factors that have been applied to the program:

- Parking 75%
- Bays and Shops 20%
- Service and Clean 10%
- Parts 10%
- Maintenance - Admin. 35%
- Operations - Admin. 35%
- Transit Services (MRO) 35%
- Shared 35%
- Training 35%

2.7 Minimum Design Requirements

- Total Bus Parking Planning Capacity is 246 trolley buses.
- The full space needs program shall be accommodated on four levels and a basement, to the extend a basement is needed.
- Unique 100 percent drive-through, bus maintenance facility that include:
  - ✓ 70-foot internal drive aisle
  - ✓ Ten Bus Repair Bays
  - ✓ Five PM/Inspection Bays
  - ✓ Tire Bay(s), Shop and Storage
  - ✓ One Miscellaneous Body Repair Bay
  - ✓ Support Shops and Storage Areas,
  - ✓ Parts Storage Warehouse with dedicated delivery dock
  - ✓ One Bus Washer per bus parking level
  - ✓ Dedicated Mechanical Systems Yard with a water reclamation equipment area.
- The top and bottom 40 feet of the ramp shall be a maximum 5 percent slope with the remainder of the ramp at a maximum slope of 10 percent.
- There is vertical space available over shops, offices, and other spaces within the maintenance areas not requiring 20-foot clearances.
- Access to the upper level joint development uses shall be provided via appropriate vertical circulation access points that preserve the SFMTA facility's security and that are safe and functional for the joint development opportunities.
- Bus turning radius has been evaluated within the building. The site and street bus turning radius shall be reviewed for conformance to performance base throughout design and construction.
- The Non-Profit Entity (NPE) must apply and show turning templates on drawings, and it has to be agreed upon that they are sufficient and work for circulation. SFMTA reserves the right to request a turning simulation to demonstrate that vehicles can maneuver safely if turning template is tight.
- The following uses had been envisioned on the basement and must be included on the site:
  - ✓ Access to lower-level work areas
  - ✓ Building support spaces
  - ✓ No public access
- Staff work areas shall be located in an above-grade, naturally lit location while accommodating the required spaces and adjacencies. To the extent feasible, include access to private outdoor spaces from staff break areas and rest spaces.

2.8 Space Needs Program & Summary

A summary of the Space Needs Program is provided below. The summary tables include projected square footage needs for building areas, parking, and staff totals.

These projected space needs are subtotaled into net square footage requirements. The detailed Space Needs Program begins with the identification of each space by name and a space standard (if applicable). The space column represents spaces required to accommodate the fleet and operation for the final build out.

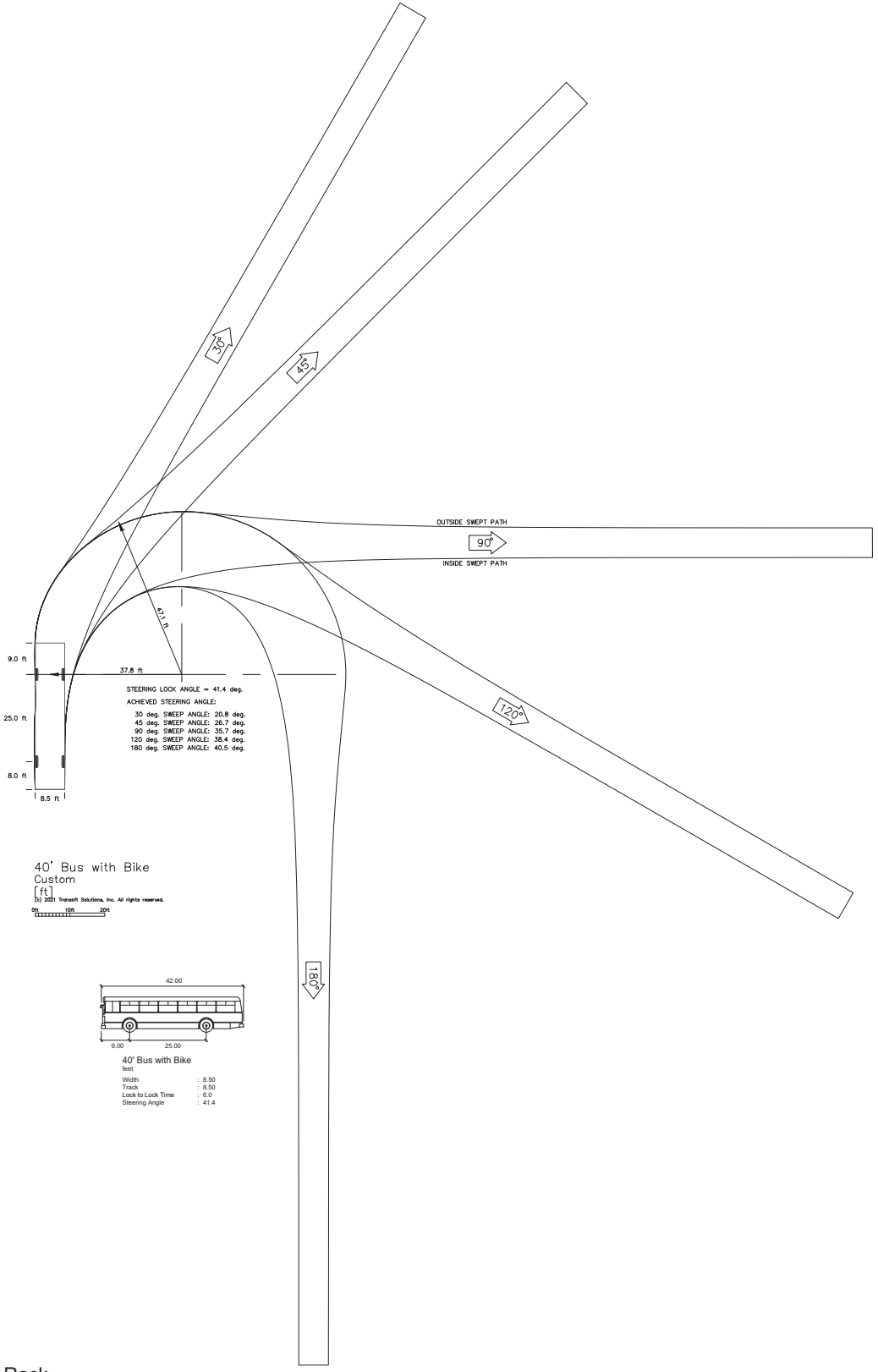
Table 1.B gives an overall square footage for each large area indicated. Table 2.E is a detailed program for each space required. Table 2.E totals are not identical to the actual square footages within the RDC but the design of the RDC was informed by Table 2.E.

The above minimum requirements notwithstanding, the design shall meet all other program, functional, and space requirements within a maximum square footage deviation of ±10% applied to each function as shown in Table 2.E- Space Needs Program.

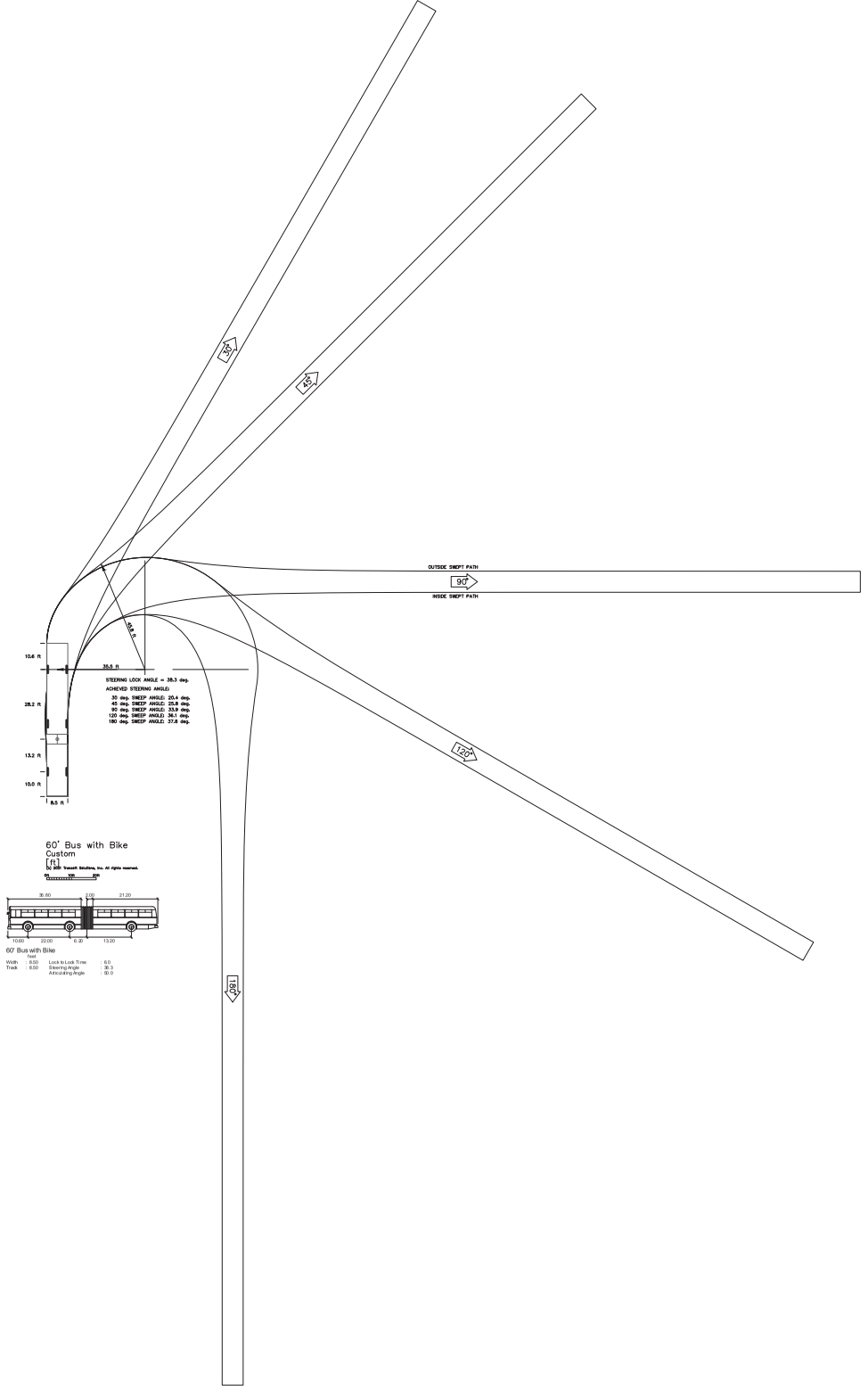
2.9 Minimum Clearance and Design Requirements

The following are minimum clearance and design requirements for the different levels of the Bus Yard Component:

- For the minimum drive aisle for bus turning, see Table 2.D.
- The minimum turning radii for buses is 36'-43', depending on degree of turn. See 40' and 60' turning template models in Exhibits 1 and 2.
- Vertical circulation for under the catwalks is 20 feet.
- The bus floor levels of the Bus Yard Component should be designed for the full bus live load, reglardless of whether the floor plans indicate other non-bus uses.
- Vertical clearance listed in the DCD is the minimum clearance height to any structure, system, building components or equipment, or fixtures.



40' Bus with Bike Rack



60' Bus with Bike Rack

SECTION 2 - SPACE NEEDS PROGRAM

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			STAFF OR VEHICLES	SCENARIO 2 POTRERO NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
PARKING												
40' Bus	12	x	45	153	153	540	82,620					The number split between 40' and 60' buses may be modified based on the BEB technology. Reference the E-Bus Performance Requirements Document. Five of these spaces should be provided adjacent to the maintenance bays & shops for down bus parking.
60' Bus	12	x	65	93	93	780	72,540					The number split between 40' and 60' buses may be modified based on the BEB technology. Reference the E-Bus Performance Requirements Document. Five of these spaces should be provided adjacent to the maintenance bays & shops for down bus parking.
TOTAL BUSES				**246**								
Large Non-Rev Vehicle	12	x	35		5	420	2,100					Operations and maintenance; All non-revenue vehicles will be electric vehicles
Standard Non-Rev Vehicle	9	x	18		84	162	13,608					Operations and maintenance; All non-revenue vehicles will be electric vehicles
Large Non-Rev Vehicle	12	x	35		3	420	1,260					Transit Services (MRO); Sprinter Command Vehicles; All non-revenue vehicles will be electric vehicles
Standard Non-Rev Vehicle	9	x	18		65	162	10,530					Transit Services (MRO); 45 pickups and 20 sedans; All non-revenue vehicles will be electric vehicles
Stationary Engineer Non-Revenue Vehicle	12	x	35		1	420	420					F250 with crew cab
Building Maintenance Non-Revenue Vehicles	12	x	35		3	1,260	3,780					For FIT/B&G
Assignable Area							**186,858**					
Net: Gross (75%)							**327,002**					
BAYS & SHOPS												
Running Repair Supervisor	64			3	3	64	192					Workstation, Shared office with PM Supervisor
Control Room - Clerk	64			2	2	64	128					Workstation, Shared Office
Floor Supervisor	64			2	2	64	128					Workstation, Shared Office
Preventive Maintenance Supervisor	64			2	2	64	128					Workstation, Shared Office with RR Supervisor
Electronic Supervisor	64			1	1	64	64					Workstation
60' Bus Repair Bay	75	x	20		10	1,500	15,000					Mix of parallelogram and inground lifts; one shared with Minor Body Repair Bay
60' Bus Preventive Maintenance	75	x	20		5	1,500	7,500					All pit and roof level bays
60' Bus Tire Bay	75	x	20		2	1,500	3,000					Two, if space allows
60' Bus Minor Body Repair	75	x	20		2	1,500	3,000					Shared with a Repair Bay
60' Bus Chassis Wash	75	x	25		1	1,875	1,875					
TOTAL BAYS					**20**							
TOTAL BAYS & SHOP STAFF				**10**								

SECTION 2 - SPACE NEEDS PROGRAM

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			STAFF OR VEHICLES	SCENARIO 2 POTRERO NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
Common Work Area					2	500	1,000					
Portable Equipment Storage					2	600	1,200					
Tool Box Storage			24		1	2,160	2,160					Total Mechanics and Technicians listed under Maintenance Admin
Tool Storage					1	150	150					Access off of Shop floor
AC Shop/Storage					1	500	500					
Battery Rebuild Shop					1	500	500					
Tire Shop					1	600	600					
Tire Storage			5		1	1,230	1,230					5 sf per total bus number
Lube Room					1	600	600					
Compressor Room					1	200	200					
Minor Body Shop					1	400	400					With workstation
Electronic Shop Workstations			30		4	30	120					Workstations, adjacent to Electronic Bench Shop
Electronic Bench Shop					1	600	600					Space for six electric benches test equipment space
Telecommunication Room					1	100	100					
Assignable Area							**40,375**					
Net: Gross (20%)							**48,450**					
FARE BOX & CLIPPER CARD READER REPAIR SHOP												Adjacent to freight elevator
Manager				1	1	120	120					Private Office
Fare Box Staff				12	12	64	768					Shared Office with space for shared computers
Incoming & Outgoing Device Storage					1	350	350					
Shop					1	300	300					
Storage					1	200	200					Secure
Parts Storage					1	600	600					
Assignable Area							**2,338**					
Net: Gross (20%)							**2,806**					
SERVICE & CLEAN												
Service Supervisor Office			64	2	2	64	228					Shared Office with space for shelves
Service Position	20	x	70		3	1,400	4,200					
Bus Washer	20	x	100		2	2,000	4,000					
Water Reclamation					1	900	900					
Cleaning Equipment Storage					3	200	600					
Assignable Area							**9,928**					
Net: Gross (10%)							**10,921**					
CLEANING STAFF				**35**								
CLEANING STAFF TOTAL				**37**								

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			STAFF OR VEHICLES	SCENARIO 2 POTRERO NUMBER OF SPACES	SCENARIO 2 POTRERO UNIT SIZE (sf)	SCENARIO 2 POTRERO SUBTOTAL (sf)					COMMENTS
PARTS												
Parts Supervisor			120	1	1	120	120					Private Office
Parts Lockers			7		15	7	105					
Break Room					1	200	200					
Gender Neutral Restroom						100	100					
Parts Storage			20		1	4,920	4,920					Freight elevator adjacent to Parts Storage. Feight elevator shall have access to all bus levels.
Battery Storage					1	300	300					Adjacent to Parts, temp controlled to 60 degrees
Parts Shopkeeper			64	5	5	64	320					Workstation
Parts Window					1	200	200					
Staging					1	600	600					Secured from any publicly accessible and joint development spaces
Receiving Office					1	300	300					Two workstations, file cabinets, valuable items storage
Shipping & Receiving					1	600	600					
Dock					1	900	900					
Assignable Area							**8,665**					
Net: Gross (10%)							**9,532**					
PARTS STAFF				**21**								

SECTION 2 - SPACE NEEDS PROGRAM

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			SCENARIO 2 POTRERO STAFF OR VEHICLES	NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
MAINTENANCE												
ADMINISTRATION												
Superintendent			224	1	1	224	224					Private Office
Assistant Superintendent			120	1	1	120	120					Private Office
Senior Controller			120	1	1	120	120					Private Office
Administrative Assistant			64	2	2	64	128					Workstation
Hoteling - Workstation			64	4	4	64	256					Workstation
Support Shop			64	1	1	64	64					Workstation
Copy/Supply					1	120	120					
Records Storage					1	200	200					
Archive Record Storage					1	200	200					
Library/Online Resources					1	172	172					Two - 36 sf Workstations and bookshelves
Telecommunication Room					1	100	100					
Kitchenette/Vending					1	375	375					
Break Room			25		1	1,250	1,250					Sized for 40-50 people
Training Room			25		1	500	500					Sized for 15-20 people
Uniform Alcove			1		147	1	147					
Men's Restroom/Shower					1	1,000	1,000					
Men's Locker			7		147	7	1,029					Total Maintenance and Clean Staff within Restroom/Shower
Women's Restroom/Shower					1	500	500					
Women's Locker			7		37	7	257					25% of total Maint. staff; within Restroom/Shower
Gender Neutral Accessible Locker/Shower/Restroom					1	150	150					
Custodial					1	100	100					
Staff & Assignable Area							**7,012**					
Net: Gross (Plus 35%)							**9,467**					
MAINTENANCE ADMIN STAFF				**10**								
MECHANICS				**75**								
TECHNICIANS				**15**								

SECTION 2 - SPACE NEEDS PROGRAM

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			SCENARIO 2 POTRERO STAFF OR VEHICLES	NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
OPERATIONS												
ADMINISTRATION												
Superintendent			224	1	1	224	224					Private Office
Assistant Superintendent			120	2	2	120	240					Private Office
Operations Supervisor			100	8	1	100	100					1 per 50 operators, huddle space for 4 person meeting. These Operations Supervisors are not included in the Reference Design Concept
Trainer			64	2	2	64	128					Shared Office
Yard Starter Office			120	2	1	120	120					Located at bus exit
Receiver			120	1	1	120	120					Private Office
Dispatch			36	6	4	36	144					Workstation
Administrative Assistant			64	2	2	64	128					Shared Office, Adjacent to Superintendent and Assistant Superintendent
Hoteling - Workstation			64	4	4	64	256					Workstation
Union Office			224	2	1	224	224					Shared Office with 3 workstations
Copy/Supply					1	120	120					
Records Storage					1	400	400					
Uniform Storage					1	80	80					
OPERATORS				**684**								
Operator Check-In					1	500	500					
Kitchenette/Vending					1	600	600					Separated from the Break Room
Break Room					1	2,000	2,000					Access to exterior space via green space on the roof
Lockers			3		714	3	2,142					Locker for all Operation staff
Locker Changing Area					2	36	72					Located adjacent to Operator Lockers
Recreation Area					1	875	875					
TV Room					1	450	450					
Quiet Room					1	500	500					Dividing wall in center of space; one side for sleeping space and one side for quiet space
Telecommunication Room					1	100	100					
Men's Restroom/Shower					1	870	870					Shower to include changing area
Women's Restroom/Shower					1	870	870					Shower to include changing area
Gender Neutral Accessible Locker/Shower/Restroom					1	150	150					
Custodial					1	100	100					
Staff & Assignable Area				714			11,513					
Net: Gross (35%)							15,543					

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			SCENARIO 2 POTRERO STAFF OR VEHICLES	NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
TRANSIT SERVICES (MRO)												
Operations Manager			120	2	2	120	240					Private Office
Transit Manager II			64	3	3	64	192					Shared Office
Transit Operations Specialist			64	20	8	64	512					Shared Office
MRO, Street Operations			30	160	10	30	300					Workstation
Junior Management Assistant			48	4	4	48	192					Workstation
Conference Room			20	1	1	600	600					Sized for 30 people, dividable with Training Room
Training Room			25	1	1	700	700					Sized for 20 person with component space, dividable with Conference Room
Break Room			15	1	1	300	300					Sized for 20 people
Lockers			7		192	7	1,344					Large lockers with electrical charging
Locker Changing Area					5	36	180					Located adjacent to Lockers
Transit Operations/Equipment Storage/Component Rebuild Assembly					1	200	200					Unconditioned space located adjacent to Transit Services Vehicles for chains, hotsticks, and cones
Telecommunication Room					1	100	100					
Men's Restroom/Shower					1	600	600					
Women's Restroom/Shower					1	600	600					
Gender Neutral Accessible Locker/Shower/Restroom					1	150	150					
Custodial					1	100	100					
Staff & Assignable Area				**192**			**6,310**					
Net: Gross (35%)							**8,519**					

SECTION 2 - SPACE NEEDS PROGRAM

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			SCENARIO 2 POTRERO STAFF OR VEHICLES	NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
SHARED												
Lobby					1	400	400					
Medium Conference Room			25		2	250	500					Sized for 8-10 people
Large Conference/Small Training			25		2	500	1,000					Sized for 15-20 people
Fitness			80		6	80	480					5-6 pieces of equipment/floor space
Offices				4	4	150	600					Shared Office for each Stationary Engineer, Electrical, Plumbing, and Custodial
Transit Maintenance Engineer				2	2	200	200					These Transit Maintenance Engineers are not included in the Reference Design Concept
Building Maintenance Storage					1	4,000	4,000					Shared with all Building Maintenance Trades. Flexible space. Connected to Shop. Adjacent to freight elevator when not located on ground floor
Shops Space (Sheet Metal +)					1	2,000	2,000					Shared with all Building Maintenance Trades. Flexible space. Connected to Storage
Telecommunication Room					1	100	100					
Main Point of Entry					1	200	200					
Main Telecommunication Room					1	200	200					
Bicycle Parking					1	250	250					Room with hooks, Class 1, ratio in SF planning code
Revenue Office					1	120	120					IT space, workstation, fare box storage; two vaults located outside space
Meet and Greet					1	100	100					At entrance of site
Security Office					1	250	250					
Gender Neutral Accessible Restroom					5	100	500					Adjacent to Security Office and two on each parking level
Trash/Recycling/Compost Compactor					1	600	600					Spread through building and compactors
Hazardous Waste					1	200	200					
Community Room					1	1,200	1,200					
Low Voltage Room Allowance					1	1,000	1,000					Subject to change based on the results of the ongoing electric study for battery electrical buses
Electrical Room Allowance					1	1,500	1,500					Subject to change based on the results of the ongoing electric study for battery electrical buses
Mechanical Room Allowance					1	2,000	2,000					
Emergency Generator					1	500	500					
Lactation Room					1	300	300					
Assignable Area				**6**			**18,200**					
Net: Gross (35%)							**24,570**					

TABLE 2.E - SPACE NEEDS PROGRAM				SCENARIO 2 POTRERO								
FUNCTION	SPACE STANDARD			STAFF OR VEHICLES	NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
TRAINING												
Reception					1	120	120					
Manager			224	1	1	224	224					Private Office
Superintendent			224	1	1	224	224					Private Office
Assist Superintendents			120	4	4	120	480					Private Office
Supervisors			64	2	2	64	128					Workstation
Clerical Staff			64	3	3	64	192					Workstation
Team Leader			64	6	6	64	384					Shared Office with storage space
CAT Training			64	2	2	64	128					Shared Office
Instructors			30	43	15	30	450					Shared Office
IT Office			120	1	1	120	120					Private Office
Classroom A			25		1	25	1,250					Sized for 50 People/ Dividable
Classroom B			25		1	25	1,450					Sized for 50 People and components
Classroom C			25		1	25	500					Sized for 20 people
Classroom D			25		1	25	500					Sized for 20 people
Conference Room A			25		1	25	250					Sized for 10 people; dividable
Conference Room B			25		1	25	250					Sized for 10 people; dividable
Simulator Room					3	500	1,500					Sized for three students, one instructor station in each
Computer Lab					1	720	720					Sized for 25 computer stations
Handouts Storage					1	120	120					

TABLE 2.E - SPACE NEEDS PROGRAM

FUNCTION	SPACE STANDARD			STAFF OR VEHICLES	SCENARIO 2 POTRERO NUMBER OF SPACES	UNIT SIZE (sf)	SUBTOTAL (sf)					COMMENTS
TRAINING (CONT.)												
Training Aid Storage					1	800	800					Includes chair and table storage
Uniform Storage					1	120	120					
Records Storage					1	200	200					
Records Archive Storage					1	200	200					
Copy/Supply					1	120	120					
Telecommunication Room					1	100	100					
Kitchenette/Vending					1	200	200					
Breakroom					1	500	500					Sized for 25 people
Operator Locker			3		50	3	150					
Instructor Locker			3		43	3	129					
Lactation Room					1	300	300					
Men's Restroom/Shower					1	570	570					
Women's Restroom/Shower					1	570	570					
Gender Neutral Accessible Locker/Shower/Restroom					1	150	150					
Custodial					1	100	100					
Staff & Assignable Area				**63**			**13,199**					
Net: Gross (35%)							**17,819**					
BUS TOTAL							**479,100**					
VEHICLE CIRCULATION (will vary depending on site configuration, number of levels, and number of ramps required)												

SECTION 3 - DESIGN CRITERIA NARRATIVE

3.0 PURPOSE & INTENT

The purpose of this chapter is to define the goals developed throughout the SFMTA Potrero Yard Planning Study, which includes the reconstruction of the Potrero Yard and the joint development opportunity of non-transit uses above the Bus Yard Component. Guided by planning, compliance, and general site criteria, simple narratives are included to provide an overview of specific systems and assemblies that the Facility requires. The intent of these narratives is to present an easy to understand, non-technical explanation of how this Facility is required to function and includes considerations from the SFMTA employee and stakeholder input.

3.1 Planning Criteria

Table 3.A provides a description of the primary planning, building quality, and transit objectives for the Bus Yard Component.

3.2 Compliance

The Project shall comply with all applicable governing codes and ordinances that regulate building construction, site design, life safety, fire protection, accessibility, energy, and environmental requirements as well as the Project Specific Design Criteria as follows (or those which are applicable at the time the design is initiated). Applicable codes to which the project must adhere are included in Table 3.B.

TABLE 3.A - PLANNING CRITERIA

Design Life	99 years
Quality	The planning, design, and construction of the facility shall be high quality and long-lasting, have the necessary spaces and systems to function well, provide a safe and healthy work environment, and be economical and resource efficient to operate and to maintain.
Planning	The facility layout shall have a logical and efficient organization and flow to allow easy and safe access and circulation for staff, vehicles, and service providers. The layout shall be open and modular with the structure located to support building and equipment loads.
Flexibility	The facility shall be designed to be flexible. Vehicle parking, service, and maintenance spaces shall have an open and modular layout to accommodate 40- and 60-foot motor coaches, trolley buses, and future electric buses. Staff areas shall be designed with an open plan with modular partitions and furnishings that can accommodate staffing and programming needs over time. Training spaces shall be modular co-located spaces with movable partitions to accommodate a wide range of group meeting needs (i.e. one large group, several small groups, etc.)
Space Utilization	The facility shall include all required spaces and assignable square footages (area inside room or boundary) in Section Two of the Facility Program as well as minimum dimensions and clearances as defined in the Space Standards. Bus areas shall be planned to maximize fleet capacity, where possible sharing circulation between functions such as parking and maintenance bays.
Workspace	Workspaces shall be designed based on needs to be highly functional spaces with quality environments that support staff health, safety, and productivity with good day lighting, good ventilation, and durable finishes. If feasible, provide direct access to green space on the roof for employee use and enjoyment.
Safety	The facility shall have the best practice safety features including fire life safety systems; adequate means of egress and way-finding components to exit discharge; fall protection; eye and ear protection; unobstructed circulation and equipment clear space; easy to use fluids collection; and good ventilation with positive pressure in staff areas.
Security	The facility shall have passive and active security. The site shall have limited vehicular and pedestrian entries that are easy to find and visible. The facility shall have card readers at all exterior entries, suite entries, and support spaces. Security camera system shall be installed to monitor all exterior access and interior areas.
Emergency Response	The SFMTA Emergency Response Plan includes emergency transportation after a disaster and then owl service (late night service) plus several additional routes in the first stage of recovery. The number of buses needed during the initial response depends on the disaster. The first stage of recovery requires approximately 250 buses and 680 operators. Please see Section 4.8.1 for more information on the expected resilience and recovery time of Potrero Yard following a major disaster.
Future Electric Buses	The facility shall build in infrastructure for battery-electric buses, using overhead fast-charge in accordance with Refer to Division 5 (Battery-Electric Bus Supplemental Criteria). The trolley bus parking spaces will be transitioned to battery-electric charging spaces over time in accordance with the transition plan approved in the Project Agreement.
Window Cleaning	The facility shall have a window cleaning regime which includes regular use of non-aggressive cleaning products. The use of aggressive or corrosive cleaning products shall be avoided. Regular window cleaning shall happen every 12 months, but not exceeding 18 months, unless undue soiling is apparent in which case the cleaning intervals should be reduced. For the Potrero Facility, the use and contract with a company that specializes in this type of cleaning is required.

SECTION 3 - DESIGN CRITERIA NARRATIVE

The Building Code and Zoning Requirements include, but are not limited to the following. The NPE is solely responsible for compliance with all applicable codes.

TABLE 3.B - BUILDING CODE & ZONING REQUIREMENTS	
Authority Having Jurisdiction:	City and County of San Francisco
Zoning Code:	San Francisco Administrative Code (Planning Code)
Applicable Codes (Adopted):	ASHRAE- 62.1, 90.1, 189.1 California Building Standards Code (with local amendments) California Electrical Code (with local amendments) California Energy Code (with local amendments) California Existing Building Code (with local amendments) California Fire Code (with local amendments) California Green Building Standards Code (with local amendments) California Historical Building Code (with local amendments) California Mechanical Code (with local amendments) California Plumbing Code (with local amendments) California Reference Standards Code (with local amendments) Department of Justice ADA Standards for Accessible Design NFPA Codes- 13, 30, 30A, 33, 88A, 110, 111, 704, 720 San Francisco Code Amendments, State Amendments, Ordinances, and Law
Occupancy Group:	S-2, B, R-2, M
CONSTRUCTION TYPE/ HEIGHT & AREA (SEE ICC TABLE 503; ICC TABLE 504.3)	
Type I-B Max.	150’-0”/ _Floors @_sf ea. Per ICC 2016; 85’ per San Francisco Municipal Code.
Fire Protection:	Sprinkler System

[4] The joint development square footages presented in this table are based on preliminary models prepared by the consultant team (The Hatch Team). The ultimate size and form of the joint development component of the project are subject to change.

SECTION 3 - DESIGN CRITERIA NARRATIVE

TABLE 3.B - BUILDING CODE & ZONING REQUIREMENTS (CONT.)

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS, FOR TYPE 1-B CONSTRUCTION (ICC TABLE 601)

Structural Frame Including Columns, Joists, & Girders	Supporting Floors - 2 hours Supporting Roof ONLY - 1 hour
Bearing Walls Exterior	(per ICC Table 602) - 3 hours
Bearing Walls Interior	Supporting Floors - 2 hours Supporting Roof ONLY - 1 hour
Non-Bearing Walls & Partitions Exterior	(per ICC Table 602) - 1 hour
Floor Construction Including Supporting Beams & Joists	2 hours
Roof Construction Including Supporting Beams & Joists	2 hours

OCCUPANCY SEPARATION, FIRE BARRIERS, FIRE PARTITIONS, & REQUIRED OPENING PROTECTIVES, FOR TYPE I-A CONSTRUCTION (ICC TABLE 504.3, TABLE 504.4, TABLE 716.5)

	PARTITIONS	OPENINGS
Occupancy Separation between (S-2, Bus Repair Garage) & (B, Training Area, Operations)	2 hours	
Occupancy Separation between (S-2, Bus Repair Garage) & (R-2, Residential T.O.D.)	2 hours	
Exit Passageways	1 hour	1 hour
Exit Enclosures	1 hour	1 hour
Vertical Shafts (for 14 stories, 144 feet, 0 inch total height)	1 hour	1 hour

INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY (SPRINKLERED BUILDING), FOR TYPE I-A CONSTRUCTION (ICC TABLE 803.11)

OCCUPANCY GROUP	EXIT ENCLOSURES & EXIT PASSAGEWAYS	CORRIDORS	ROOMS & ENCLOSED SPACES
S-2	Class C	Class C	Class C
B	Class B	Class C	Class C
R-2	Class C	Class C	Class C

SECTION 3 - DESIGN CRITERIA NARRATIVE

3.3 General Site Requirements

There are specific site requirements necessary to ensure safe, efficient, and functional facilities that are outlined (and not limited to) the following:

TABLE 3.C - GENERAL SITE REQUIREMENTS

Facility Accessibility	Provide a minimum of two vehicular entries/exits configured such that either could work as the entry/exit if the other is unavailable.
Facility Lighting	Use appropriate and adequate lighting for day to day operations and to ensure high level of surrounding visibility. Transit facility will have movement around and through the facility at all times of day.
Pedestrian Safety & Accessibility	Observe all code and regulation requirements to insure safe and defined pedestrian circulation paths (necessary striping, bollards, curb cuts, etc.); and that paths minimally intersect fleet ingress and egress. The SFMTA staff have made a number of suggestions to ensure that bus/ pedestrian conflicts are minimized. While beyond the scope of this document, specific design treatments within the right of way to advance this goal include traffic signal pre-emption for buses; separating entrances to the bus facility and joint development to the greatest degree possible; provide transit lanes for buses to connect to OCS; and striping for on-street parking, bicycle facilities, and loading to minimize conflicts with bus movements.
Site Stormwater Drainage	Positive drainage and appropriate stormwater discharge from site and upper exterior/open decks; a stormwater management and pollution prevention plan shall be established. Required per the San Francisco Green Building Code Amendments and GS6 Form for municipal projects and the SFPUC Stormwater Management Ordinance.
Sustainability	Provide as required including the San Francisco Municipal Green Building Code (Environment Code Chapter 7), CALGreen, and the San Francisco Green Building Code. Potrero must be built to a LEED Gold rating.
Parking	(Employee Parking will not be provided)
Security	Provide site video surveillance and building security.
Better Streets	https://sfplanning.org/resource/better-streets-plan
Mission Area Plan	https://generalplan.sfplanning.org/Mission.htm
Mission District Streetscape Plan	https://archives.sfplanning.org/CDG/docs/missionstreets/MDSP_FINAL_DRAFT_OCT2010.pdf https://sfplanning.org/resource/sdat-standard-comments
San Francisco's Biking and Rolling Plan: Active Communities	https://www.sfmta.com/projects/biking-and-rolling-plan

SECTION 3 - DESIGN CRITERIA NARRATIVE

3.4 Sustainability Narrative

Per Table 3.C, the Project must be designed, built, and commissioned in compliance with the San Francisco Municipal Green Building Code (Environment Code Chapter 7) and must achieve a LEED Gold certification (minimum). The following are sustainability strategies that the SFMTA looks favorably on, in addition to all applicable code requirements:

- Innovative and creative storm water management that does not result in square footage loss
- On-site rainwater harvesting and reuse
- Solar panel or other on-site generation
- Commissioning and enhanced energy performance
- Wastewater recycling

In addition, District Utility Systems shall be evaluated as part of the Project's sustainability strategy, so long as a District Utility model could maintain the SFMTA's security and emergency backup power requirements. See Division 4 (*Supplementary Design Criteria)* of the Technical Requirements.

San Francisco Green Code Mandates:

- Indoor water use reduction
- Construction waste management
- Commissioning
- Storm water management
- Energy performance
- Temporary ventilation and IAQ management during construction
- Low-emitting materials (low VOCs)

Cal Green Mandates:

- Light pollution reduction
- No halons in HVAC, refrigeration and/or fire suppression equipment electric vehicle charging.

3.4.1 Materials

Mass walls:

- Structural concrete walls are beneficial for tempering the temperature fluctuations throughout the day. Reduce mechanical cooling during daytime hours and containing/ emitting heat during cold nights.

Construction Materials:

- Select materials and products that reasonably minimize resources used, are locally available and produced.
- Use recycled content in all carpet, tile, millwork, and ceiling finishes.
- Use recycled content in all CMU, concrete, and steel structure components.
- During construction phase, divert construction waste from landfill, collect paper, glass, plastic, cardboard, metal, and batteries on site to be recycled.
- Use low VOC emitting paint, coatings, adhesives, flooring, composite wood, and ceiling/wall/thermal/acoustic insulation.
- Use of high fly ash content in concrete
- Use modular furniture systems
- Use certified wood and comply with Chapter 8 of the San Francisco Environment Code.

Proximity:

- Use locally harvested and manufacturer materials to the extent possible.
- Plan for Future Use:
  - ✓ Conduct life cycle cost analysis.
  - ✓ Ensure programmatic functionality.

3.4.2 Water

Indoor Water Use Reduction and Grey Water Treatment:

- In addition to low flow fixtures and rainwater storage, explore the use of gray water treatment and reuse.
- Grey water from lavatories and showers can be treated and used as flush water and/or irrigation water to further reduce the potable water required on site.

Wash Water Recycling System:

- Conserves water and reduces wastewater effluent.

Water Metering:

- Per CALGreen Code, the minimum requirements for water sub-metering for non-residential building above 50,000 st ft:
  - ✓ Makeup water for cooling towers where cooling tower flow is greater than 500 gpm.
  - ✓ Makeup water for evap coolers greater than 6 gpm.
  - ✓ Steam and hot water boilers with energy input more than 500,000 BTUH.
- Additional water sub metering may be required if the LEED water sub-metering credit is pursued.

3.4.3 Energy Efficiency

Demand Control Ventilation – CO2 Monitoring:

- Provide CO2 sensors to be used in densely populated spaces to eliminate over-ventilation and energy waste.

Air Side Economizers:

- Economizers shall be incorporated with HVAC units to provide free cooling to the spaces when outdoor conditions permit.

Reduce Fan Operating Pressure:
- Select coils and filters with the intent to reduce overall pressure and fan energy. Coils and filters shall be sized for face velocities no greater than 600 fpm. Ductwork pressure drops shall be sized no greater than 0.08 inches wg.

High Efficiency Equipment:
- Selected HVAC equipment shall provide efficient heating and cooling for the interior space.

Improved Building Envelope:
- Exterior walls and roof insulation value shall have an (R-value) that meets CEC (Title 24, Part 6) minimum requirements.

Commissioning:
- Prior to occupancy, HVAC, plumbing, power, and lighting systems shall be commissioned to confirm operation is in accordance with the design intent.

3.4.4 Site/Building

Water:
- Stormwater Management
  - ✓ Pre-treat stormwater water to draw out pollutants, reduce peak flow and recharge groundwater.
- Water Conservation
  - ✓ Apply San Francisco standards and best practices where applicable on the site.
- Rainwater Harvesting
  - ✓ Determine if rainwater harvesting, collection, and reuse is feasible on this site and what size cistern is appropriate.

Vegetation:
- Sustainable Planting Design
  - ✓ Plant trees for shade over paved surfaces to reduce heat island effect. Preserve trees where possible and plant native trees per LEED and San Francisco Bureau of Urban Forestry requirements.

Site Lighting:
- Avoid light pollution by selecting full cutoff fixtures, utilizing LED source for all site lighting, lighting levels in full compliance with IES recommended lighting levels, by taking advantage of the LED drivers' ability for dimming, and occupancy sensors to reduce lighting levels whenever the site is not fully utilized.

Health and Well-being:
- Design for physical activity
  - ✓ Design for physical activity and health of employees workout in the Facility by providing a room and access to planned greenspace.
- Design for optimal social interaction and community engagement.
  - ✓ Provide outdoor and indoor space for employee meals and other activities.
- Wayfinding
  - ✓ Provide clear wayfinding that utilizes multiple best practices to direct employees and the public around the site as appropriate.

Alternative Transportation:
- Ensure unhindered access to public transportation.
- Provide bicycle storage/changing rooms.

Pollution Prevention:
- Create and implement an erosion and sedimentation control (ESC) plan.
- Filter storm water run-off with an oil/water separator.
- Plan for 100 percent on-site storm water detention, if possible.

Noise and Vibration:
- This Facility will be operated year-round, 24 hours a day, 7 davs a week. Proper public nuisance notification and sound abatement needs shall be addressed in the design. Details of the noise and vibration performance criteria are presented in a supplemental document in Division 4 (*Supplementary Design Criteria)* of the Technical Requirements.

Public Right-of-Way Improvements:
- The criteria below require consultation with certain City departments in their regulatory capacity. Reference Appendix H: SDAT Review Letter 1.19.2023 (For Reference).

Curb Extensions (Bulb-Outs):
- Design bulb-outs at each street corner adjacent to the Project Site, if feasible, to slow turning vehicles and shorten crossing distances while allowing buses and emergency vehicles to safely turn without entering into the opposite travel lane.
- Design bulb-out to ensure bulb-outs curb returns are sweepable with standard City street sweeper equipment and don't compromise the street's capacity for conveying stormwater during storm events.

Accessible Curb Ramps and Accessibility Requirements:
- Design accessible pedestrian ramps at all street corners with existing curb ramps at receiving ramps at the opposite end of the crosswalk, including the midblock along Mariposa Street at York Street.

SECTION 3 - DESIGN CRITERIA NARRATIVE

Loading Zones:
- Design appropriate accessible passenger and commercial loading zones based on a loading needs analysis and a loading operations plan regarding both off-street and on-street loading operations.

Street Trees:
- Provide street trees along all frontages but avoid placement of trees within 25 feet of the corner property line on approach to enhance pedestrian visibility and safety.

Street and Pedestrian Lighting:
- Ensure appropriate illumination levels by upgrading existing or installing new street and pedestrian lighting based on photometric studies.
- Orient streetlights to protect night skies and use energy efficient luminaries.

Electrical Transformers:
- Ensure location of transformer room is accessible to the electrical power utility (PG&E and SFPUC) from the public right-of way.
- Ensure location of new underground electrical vaults within the sidewalk does not cause the loss of mature street trees, if feasible.

Waste Collection:
- Locate waste collection areas within the Facility based on a trash loading and removal strategy that has been coordinate and reviewed by the waste collection service provider.

Citywide Bicycle Network / Vision Zero / 17th Street Frontage:
- Provide a safer active transportation route for employees to get to and from the Facility by providing protected bike lanes on each side of 17th Street which is part of the Mission to Peaks Route of the City's Green Connection Network.
- Provide safe access between the Facility and Franklin Square by providing a Rectangular Rapid Flash Beacon in each direction at the crosswalk on 17th Street at Hampshire.

3.4.5 Efficiency and Quality of Operations

Minimum Performance:
- Prohibit smoking in the building and locate designated areas 25 feet from entries to comply with code and enhance employee and visitor health.

Construction Management:
- Protect stored on-site or installed absorptive materials from moisture damage
- Replace all filtration media prior to occupancy
- Perform building flush-out (14,000 or 3,500 cubic feet) prior to occupancy

Low emitting materials:
- Low VOC Adhesives/ sealants, paints, carpet, and composite wood
- Comply with Green seal standard for commercial adhesives
- Anti-corrosive and anti-rust low VOC paints
- No use of urea-formaldehyde resins in laminating adhesives

Plan for Flexibility:
- Include flex shop space.
- Create appealing public and private spaces.
- Circulation shall be function and equipment driven.

Parts Storage System:
- Optimally utilize the volume of space, minimizing the building area footprint.

3.4.6 Electrical

Power Monitoring for Possible Load Shed:
- Service feeder main and all sub-distribution switchboard feeder breakers shall include power digital meters for centralized digital remote monitoring of the building's energy usage for trending analysis and management.

Natural Lighting:
- Daylight harvesting shall be utilized where possible to provide a better working environment by introducing natural light within the work place.

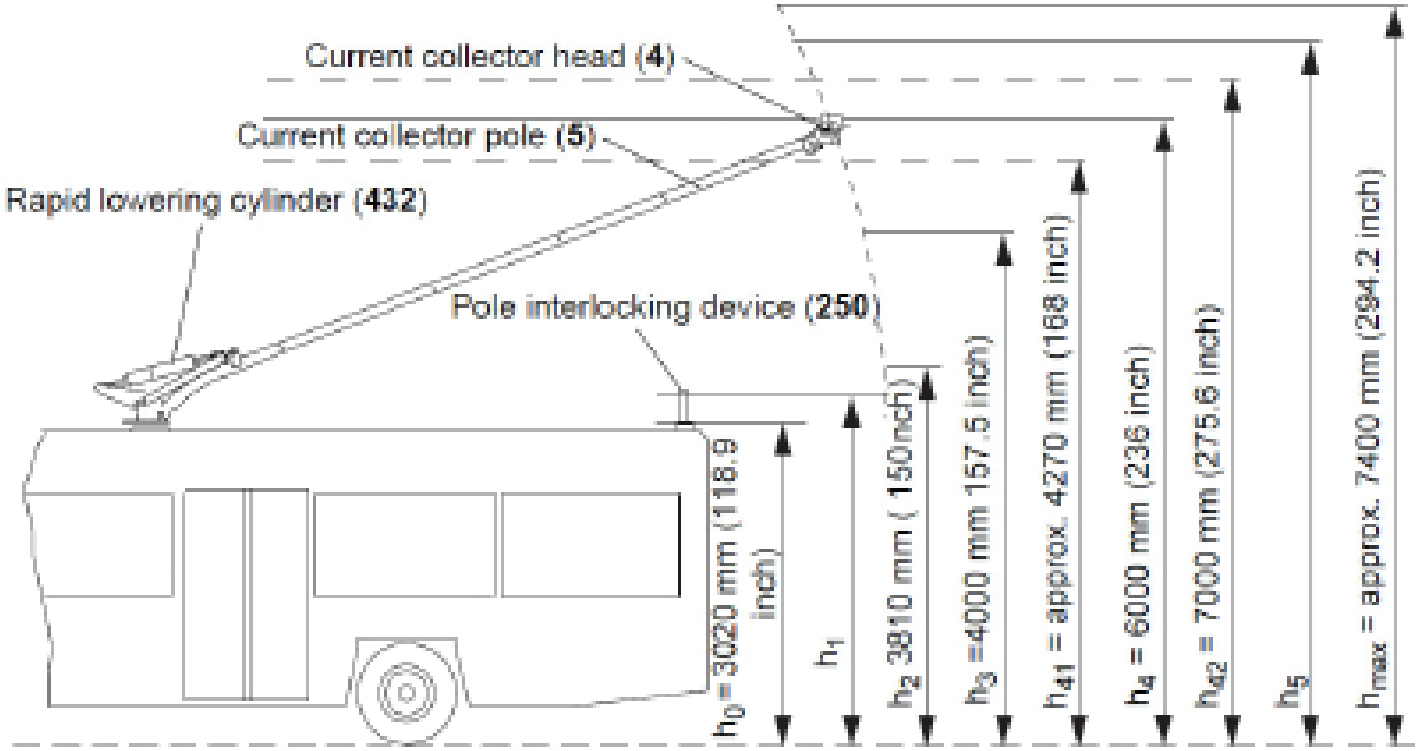
On-Site Generation and Storage:
- Include on-site energy generation and storage where possible, including solar panels and battery systems, to assist in overall building electrical demand and/or backup power.

3.5 Architectural Narrative

The Project will be a mixed-use, joint development consisting of a bus garage and maintenance facility (the Bus Yard Component) and multiple levels of joint development. The Bus Yard Component is intended to service, maintain, and store a fleet of 40- and 60-foot buses. It consists of a main building that will house separate operations and training facilities, service and inspection bays, bus washes, bus parking, and the associated ancillary and office facilities.

The Potrero Yard bus garage will have three-levels accessible by a scissor express ramp structure for vehicular circulation. Each of the floor plans have areas designated for vehicle parking, service, and maintenance spaces to accommodate 40- and 60-foot trolley buses and future battery electric buses. A bypass ramp at grade will allow buses to enter the facility from Mariposa Street. Provide bypass access to

OCS TROLLEY HEIGHT DIAGRAM



travel directly to the bus parking spaces.

The bus ramps shall extend one additional level to access the transit facility roof.

Pigeon abatement is a major concern. Numerous abatement measures, including bird repellent and spikes, bird wire, bird netting, shock flex tracks, lodge design, bird coils, moving owl, and ultrasonic electric devices can be used.

The new Potrero Yard shall comply with the San Francisco Green Building Code requirements. The building shall meet US Green Council (USGBC) and Leadership in Energy and Environmental Design (LEED) requirements, and obtain GOLD certification.

The materials used in the construction of the Potrero Yard Facility shall be attractive and, durable inside and outside the building, complement the context/environment around the site and neighborhood, and meet the design standards of SF Planning and the San Francisco Arts Commission[5]. Reference the Project Design Guidelines for facade, glazing, etc.

3.6 OCS - Trolley

Poling and de-poling will happen within the Facility per PNC conceptual design in the recent final 100% SD documents. As the trolley buses enter the Facility, they will transition off-wire to navigate through. Once the trolley bus is parked in a bus parking stall, OCS must be provided above for on-wire connection while stored. When leaving the parking stall, the trolley bus will go off-wire again to navigate through the Facility. Once through the exit of the Facility, the trolley bus will connect back to the wire. OCS wire shall also be provided in all repair bays except the preventive maintenance bays for needed power during maintenance. The mechanism for disconnecting from the right-of-way OCS to the facility (pull-in), as well as back onto the right-of-way OCS from the facility (pull-out), shall be carefully considered by the Project Team and proposed through the Bus Facility Technical Proposal.

Shoe replacement will take place just after the trolley bus enters the Facility at the Meet and Greet area. There shall be access to the roof of the vehicles; via a three-axis lift, elevated platform, or any equal means of access for an employee to be able to safely access the shoes on top of the trolley buses.

Appendix B to this document is the SFMTA's OCS Design Criteria document. For this project, the Project Team shall focus on the first section of the document for relevant OCS requirements. Much of the information in the later sections of Appendix B should be interpreted as reference information. See room data sheets for illustration of OCS in applicable spaces. See also the Traction Power section of this document for information on the electrical connection for the trolley OCS network.

Deviation from OCS criteria, such as use of overhead charging pans in the maintenance bays, or non-tension wire in the parking stalls, is acceptable if full functionality is met. This deviation must be considered through the Alternative Technical Concept process. During construction, the Project Team must work closely with the SFMTA's Transit Division to accept all design drawings, and Muni Construction Support for all right of way work and relevant Clearance Permits.

Trolley pole system inspection and maintenance to be conducted in the Preventative Maintenance (PM) Bays. See diagram below and PM Bay room data sheet for requirements.

3.7 Site

The current Potrero Yard, located on a city block bound by Mariposa Street to the south, 17th Street to the north, Hampshire Street to the east, and Bryant Street to the west, sits at the edge of the Mission District and Potrero Hill.

The current site is rectangular in plan and measures approximately 480 feet east to west by 400 feet north to south. On the east side of the site, an approximately 215-foot wide building extends length-ways from the northern site boundary to within 30-feet of the southern boundary. The remaining western portion of the site is occupied by an asphalt and Portland cement concrete (PCC) paved electrified-bus parking area at ground-level.

The ground-level parking area features numerous ancillary facilities and overhead catenary system (OCS) support poles, guy wires, and live electrical lines. A bus wash station occupies the north central area of the lot and a trash compactor facility occupies the northwest corner of the lot. Access to the ground-level parking area is by an entrance on Mariposa Street.

The ground-level parking area slopes gradually from approximately elevation +54 foot SF-VD13 in the northeast corner to elevation +48 foot SF-VD13 in the southwest corner. The relatively level site has been created by cutting a bench into the natural slope. As a result, along the

[5] Please see the adopted Urban Design Guidelines for the City and County of San Francisco at <http://default.sfplanning.org/plans-and-programs/planning-for-the-city/Urban-Design-Guidelines/Urban_Design_Guidelines.pdf>.

northern boundary of the site, the elevation of 17th Street is between 10 feet and 23 feet higher than site grade. This difference reduces along the eastern and western boundaries of the site, along Hampshire Street and Bryant Street, respectively, such that Mariposa Street at the southern boundary is at the same grade as the parking area.

The differences in elevation between the site and surrounding streets are accommodated by reinforced concrete retaining walls along the western portion of 17th Street and along Bryant Street, and by integral retaining walls within the building along the eastern portion of 17th Street and along Hampshire Street.

The existing building on the site is predominantly a single-story structure housing a maintenance garage at grade (at Mariposa Street level). The garage area features vehicle service pits for maintenance access to the underside of the buses.

3.8 Structural Narrative

The Potrero Yard project will require several considerations in the appropriate selection of a structural system given, among other things, the long spans of the Bus Yard Component.

Additional geotechnical investigations by NPE are required to inform NPE's structural design for the Project. For the Reference Concept Design, the SFMTA commissioned ARUP/ RYCG to perform a preliminary geotechnical analysis for the Project.

3.8.1 Structural Summary

This section summarizes the project's structural design standards and outlines the approach for the new structure at the site, with an eye toward earthquake resilience. This approach is developed to provide consistency in design between the existing and new structures throughout the Facility. Items included within this section are Structural design criteria, code analysis, materials, earthquake resilience, and NPE's Geotechnical Baseline Report (see Appendix I).

The concept plan for the rebuild of Potrero Yard involves the demolition of the existing building and all existing utilities serving the existing facilities (including the building, bus wash, and any others) must be demolished, removed, and capped in place unless otherwise noted on the site[6] and the construction of a three-level bus storage and maintenance facility. The maintenance facility will feature vehicle service pits formed by shallow excavations below current site grades.

NPE shall accept existing site perimeter retaining walls in their current condition and is responsible for any required due diligence or site investigation required to inform their design and construction. As-built drawings are provided by the City for information only and shall not be relied upon. Shall any existing retaining walls remain in place or be incorporated in the NPE's design, the NPE shall demonstrate suitability and viability of the existing retaining walls and ensure the future design life is commensurate with the new construction.

Design and construction associated with temporary or permanent retaining structures, including the removal, partial re-use or re-use of the existing perimeter walls, shall adequately consider impacts on adjacent property. These include, but are not limited to impacts on:

- Temporary stability
- Temporary street closures and permitting required for proposed works, including impact on MUNI operations
- Buried and overhead utilities
- MUNI lines
- Pavements
- Groundwater levels
- Any other structure, building or utility that may be affected

Ground movements associated with any basement or retaining structure design, including removal, partial re-use or re-use of the existing walls, shall be evaluated. Impact assessments shall be carried out for all structures, buildings, and utilities within movement zone of influence.

The NPE shall be responsible for obtaining any permits and/or easements necessary to perform work outside of the property line, should this be required to complete the reinforcement and/or reconstruction of perimeter retaining walls.

For the Reference Design Concept, a post-tensioned, cast-in-place concrete beam and slab system with concrete shear walls for resisting lateral loads was considered an appropriate design solution; however, this does not preclude alternative solutions such as structural steel framing. In areas that may be accessible to buses, all columns shall be painted yellow and protected by bollards or other means to minimize the risk of damage from vehicle collisions.

3.8.2 Seismic Resilience

The desired resilience performance criteria for the Facility in the event of a major earthquake is required for the design of its structural system and other building systems. Details of the resilience performance criteria are presented in a supplemental document in Division 4 (*Supplementary Design Criteria)* of the Technical Requirements.

[6]See Section 4.7.1 for a discussion of the preservation of the façade of the existing Potrero Yard Car House.

DESIGN CRITERIA NARRATIVE

3.8.3 General Structural Approach

The structural design shall be closely coordinated with all other disciplines to ensure that structures perform to their intended purpose over 99 years. The structural design shall incorporate the following principles, in addition to meeting all applicable code requirements:

- Strength: Structures will have adequate strength to support their own weight and the weight of all equipment and vehicles and resist all anticipated gravity and lateral forces.
- Serviceability: Structures will be designed to meet day-to-day user needs and be highly functional over their intended service life. Serviceability considerations include:
  - ✓ Floor stiffness to minimize adverse vibration effects to equipment and floors
  - ✓ Durability of structures to resist effects of temperature variation, weather exposure, shrinkage, in-service use, chemical exposure, and corrosion
  - ✓ Resistance to groundwater infiltration and structure buoyancy in high groundwater conditions
- Load Path: A clear and identifiable load path will be provided for all gravity and lateral forces to be resolved into the foundations.
- Constructability: Structures shall also be designed with consideration given to current construction practices, including items such as:
  - ✓ Placement of formwork
  - ✓ Placement of reinforcing and concrete
  - ✓ Placement of deep foundations, such as driven piles, drilled concrete piers, etc.
  - ✓ Construction joints
  - ✓ Efficient use of materials
  - ✓ Limiting use of field fabrication & welding
  - ✓ Site constraints and existing building structures
  - ✓ Cold and hot weather construction
- Code Compliance: Structures will comply with all applicable codes, as described further into this document.

3.8.4 Foundations

Shallow foundations bearing on the weathered rock in Zone 1[7] may be possible; however, shallow foundations bearing on the near surface Clayey Sand unit in Zones 2, 3, and 4 are ruled out to avoid excessive differential settlement. Deep foundation solutions are therefore required to transfer building loads to the dense sand layer and the underlying weathered rock in these zones. Deep foundation options identified as suitable for this site include:

- Driven steel H-piles
- Continuous flight auger (CFA) piles (also referred to as auger-cast-in-place or auger-pressure grouted piles)
- Concrete-filled steel pipe (CFSP) piles installed with proprietary tips

The length of the deep foundations/piles/piers will vary with the depth rock profile. Additional information about foundation can be found in NPE's Geotechnical Baseline Report.

3.8.5 Structural Design Loads

Loads used in the structural design are noted in Table 4.D, except as further defined in the following sub-sections.

3.8.5.1 Load Criteria for Suspended Structure Supporting Buses

To allow for future programming flexibility, the criteria specified in this section shall apply to all suspended floor structures accessible to and having sufficient ceiling heights for buses.

This loading shall apply as a minimum. During the PDA phase, the NPE shall work with SFMTA to confirm the live load criteria that may be specific to the types of buses envisaged in the future for this Facility.

Floor Live Loads for the Bus Yard Component:

- For strength considerations, the vehicle live load cases given in AASHTO shall be used. These load cases shall be applied utilizing ASCE7 load combinations and without AASHTO dynamic impact factors. The live load cases shall include concentrated loads considering the AASHTO design truck. Partition loading need not be combined with these loads.

Deflection shall also be checked under live loading. These checks shall utilize the AASHTO live load configurations for deflections, and shall meet deflection criteria as set out by the California Building Code.

These loads shall not be reduced based on supported tributary area. This applies to floor structure and columns supporting a single floor as well as multiple floors containing buses. Live load reductions may be taken as permitted by the code for other types of live load where a structural component supports those types of load in addition to bus loading.

[7] Please see NPE's Geotechnical Baseline Report for a full explanation of the composition and location of Zones 1-4.

Seismic Mass:

- Seismic mass for floors supporting buses shall be derived from the weights of structure and permanent non-structural components in addition to a uniform load associated with the weight of empty parked buses. That load shall be taken as 100 psf. Accidental eccentricity of the mass as required by ASCE7 shall also apply to this load.

SECTION 3 - DESIGN CRITERIA NARRATIVE

TABLE 3.D - STRUCTURAL DESIGN LOADS

LOAD CASE	CRITERIA
Dead	Self-weight of all structures Superimposed dead load due to weight of architectural finishes as well as MEP and fire protection distribution systems (20 psf minimum)
Floor Live Loads	Vehicle Live Loading Per AASHTO including design truck loads(Reference Section 4.8.5.1) MEP or process equipment rooms= 250 psf, or actual equipment weight as dead load if more severe Walkways, Stairs, and Grating = 100 psf All Other Areas = Per governing code Storage Rooms = 150 psf
Dynamic Equipment	Vibration characteristics as specified by manufacturers
Impact Loads	Cranes and Hoists: 25 percent of lifted load Forklifts: 25 percent of wheel loads Crane Lateral Force: 20 percent of lifted load Reciprocating Equipment: 50 percent of total machine weight Crane Longitudinal Force: 10 percent of lifted load Rotating Equipment: 20 percent of total machine weight
Lateral Earth Pressure	As recommended by NPE's Geotechnical Baseline Report for saturated soils
Liquid Densities and Hydrostatic Loads	Water = 62.4 pcf
Wind	Minimum Basic Wind Speed = 95 mph Exposure Category = B Importance Factor, Iw =1.0
Seismic	Site Class C Seismic Design Category D Seismic hazard parameters SDS, SD1: Seismic design parameters shall be confirmed by the Non-Profit Entity's own geotechnical investigation. Importance Factor, Ie= 1.0 (note additional seismic resiliency requirements per Division 4 of the Technical Requirements) Seismic mass= dead load + 100 psf where accessible to vehicles (see Section 4.8.5.1)
Roof Snow*	Ground Snow Load = Zero
Roof Live	20 psf or 500 lb concentrated, nonconcurrent

SECTION 3 - DESIGN CRITERIA NARRATIVE

3.8.6 Applicable Code & Referenced Standards

The design of structural engineering systems for the Project shall be in accordance with the laws and regulations of the State of California, City and County of San Francisco ordinances, and industry standards, except where more stringent standards are given in this document. In cases where conflicts between the cited documents exist, requirements of the more conservative document will be used.

TABLE 3.E - STRUCTURAL APPLICABLE CODES

Governing Agency	City and County of San Francisco, CA
Agency Contact	https://sfdbi.org/
Adopted Building Code	California Building Code
Loads	ASCE 7-16
Concrete and other structures	ACI 318-14
Specifications for Structural Concrete for Buildings	ACI 301-99
Structural Steel	AISC Manual of Steel Construction, 14th Edition
Specification for Structural Joints Using	ASTM A325 or A490 Bolts
Masonry	ACI 530-08/ ACI 530.1-08
Aluminum	Aluminum Design Manual ADM 1-05
Wood	ANSI/AWC NDS-2015
Light Gauge Steel Framing	AISI D100-08, AISI S1000-07
California Building Standards Commission	California Building Code (CBC), Latest Edition
Code of Standard Practice for Steel Buildings and Bridges Design, Manufacture, and Installation of Concrete Piles	ACI 543R-00

SECTION 3 - DESIGN CRITERIA NARRATIVE

3.9 Mechanical Narrative

General HVAC:

All HVAC design shall be in compliance with applicable codes and standards (including but limited to): California Building, Mechanical and Fire Codes, with local amendments; NFPA 30A, 75, 88A, 90A, 90B and 91; ASHRAE 1, 21, 52.2, 55, 62.1, 90.1, 111, 135 and 189.1.

The use of combustion-fired equipment (including natural gas, liquid propane gas and fuel oil) is strictly prohibited.

Supply, exhaust, and return ducts shall be designed with a maximum of 0.08-inch water gauge static pressure drop per 100 feet of duct. Supply ductwork serving mechanical air conditioning shall be insulated. Exposed ductwork shall be round or oval, uninsulated and suitable for painting.

Transmission mechanisms of SARS-CoV-2 (COVID-19) are not fully understood and there is evidence for an airborne route to be considered, as the virus remains viable in aerosols for at least 3 hours and that mask usage was the best intervention to prevent infection. Heating, Ventilation and Air Conditioning Systems (HVAC) are used as a primary infection disease control measure. However, if not correctly used, they may contribute to the transmission/spreading of airborne diseases as proposed in the past for SARS. Ventilation and filtration provided by heating, ventilating, and air-conditioning systems can reduce the airborne concentration of COVID-19 and thus the risk of transmission through the air. All ducted supply air systems shall be equipped with MERV-8 pre-filter and 4-inch MERV-13 final filter.

Seismic-restraint systems shall comply with CBC requirements. See Section 4.8.1 for seismic resilience requirements.

3.9.1 Mechanical Sustainable Design Systems

Sustainable design requirements and best practices shall be complied with, adopted, and implemented where such requirements are promoted by the United States Green Building Council (USGBC), as defined under the published LEED Standards. The Project must conform to LEED Gold Standards. Code required restrictions placed on the use and quantities of toxic and/or environmentally deleterious substances such as Volatile Organic Compounds, (VOCs), that are components in certain sealants and construction materials, and on the use of HCFC refrigerants in HVAC systems, are specific examples of applicability of such sustainable-based Code design requirements. An energy model will be required based on performance approach to confirm compliance with CALGreen/Title 24 and LEED requirements. LEED credit EAc2 Optimize Energy Performance shall achieve a minimum of 12 points. LEED credit EAc5 Renewable Energy v4.1 shall achieve a minimum of 3 points.

Heating and cooling load calculations for the industrial areas shall be performed in accordance with LEED, CALGreen, and Climate Zone 3. The design of the mechanical ventilation systems, heating systems and cooling systems must comply with the respective requirements of the California Mechanical Code (CMC), ASHRAE Standards of Indoor Air Quality and Thermal Comfort, and CALGreen/Title 24 where applicable.

3.9.2 Operations Areas

The operations portion, as described in the Space Needs Program, any space needed for operators of the Facility shall be climate controlled by heating and air conditioning capabilities. No more than four offices per thermostat. Ventilation shall be in accordance with ASHRAE 62.1. Exhaust fans must be provided for locker rooms, restrooms, kitchen/ break rooms and janitorial areas. A minimum of 1/2 to 1.0 CFM per sf exhaust is recommended for these types of spaces.

3.9.3 Maintenance Parking Areas

Filtered and heated ventilation supply air distribution system, plus exhaust, is required to serve the maintenance and vehicle parking areas. Vehicle maintenance and enclosed parking areas must comply with California Fire Code (CFC), California Mechanical Code (CMC) Table 403.7 and NFPA.

3.9.4 Building Temperature Controls

Direct digital controls (DDC) and Energy Management Control System (EMCS) are required to comply with CalGreen/Title 24, §102.2, Article 4.5.1. All new DDC/EMCS systems shall be BACNet open protocol.

EMCS shall incorporate integrated hardware and software designed to: perform data acquisition, monitor alarms, provide exception reporting, automate controls, and produce historical records of the buildings or the site.

EMCS shall maintain zone comfort, access the system locally (for each building) and centrally (for the entire site, campus, or portfolio) at the same time, to monitor local and remote alarm systems, and provide graphical system displays, graphical analyses, and energy-use summary reports customized to the

facility's operations. In addition, the EMCS shall ensure the operation of each buildings' HVAC, domestic hot water, fire alarm, security and lighting systems. The EMCS shall evaluate the energy characteristics of the HVAC, domestic hot water and lighting system and validate that cost reductions are, in fact, being achieved.

3.10 Plumbing Systems

Domestic and fire protection water shall be provided to the building from a water line extended from the site service connection. A strainer, lead-free reduced pressure backflow and utility grade remote reading water meter must be provided on domestic water lines serving the building. The backflow relief shall discharge outside of the building. Pipe sizing inside of the Facility shall comply with the requirements in the California Plumbing Code (CPC) and a maximum system piping loss to provide a 10 percent pressure safety factor at full system flow. Velocities within any main or branch of the piping shall not exceed 7-feet per second (FPS). Interior domestic water piping above grade will be Type L copper with copper solder- or pressure-sealed joints. All buried domestic water pipe below slab shall be protected with 20 mil polyethylene tape and pipe sleeve at slab penetration.

The supply line to each item of equipment or fixture must be able to be isolated for repair and maintenance without interfering with the operations of other equipment or fixtures. Water hammer arrestors will be in an accessible location on the domestic water piping system where shock pressures could occur. Water hammer arrestors will be PDI-WH 201 certified.

A high efficiency domestic water heating system will be provided with hot water recirculation. Per CALGreen/Title 24 standards, a recirculation pump with timer are required to provide sufficient hot water throughout the facility. A thermostatic mixing valve will be installed on hot water systems. Domestic hot water system to be provided with thermal expansion tank, and re-circulating pump, for hot water return system. All hot water piping shall be insulated. The use of combustion-fired equipment is prohibited. High-efficiency, low-flow plumbing fixtures will be employed throughout the building to meet current CALGreen/Title 24 standards. ADA-compliant electric water coolers and toilet room fixtures will be incorporated.

Water closets will be low flow, vitreous china, siphon jet, 1.28 max gallon per flush (GPF) maximum; commercial seat with self-sustaining check hinge. Utilize ultra-low flow vitreous urinals (0.125 max GPF).

Lavatories will be under-counter or wall-hung mounting, with deck mounted, hydraulic powered, 0.5 max GPM infrared faucets, with sensor under spout.

The floor mounted mop basin will be molded stone with wall-mounted chrome-plated service sink faucet with vacuum breaker; ADA compliant handles with maximum flow rate of 1.8 max GPM. Break (coffee) and kitchen area sinks will be stainless steel.

A gravity sanitary lateral will handle all levels, except the basement. The basement will have a sewage ejection system consisting of a sump tank, duplex ejector pumps and pits sized to unit pump to a maximum of six starts per hour. Ejector pumps will be connected to standby power. Sanitary waste will discharge to the street main.

All industrial waste, covered parking, deck drains, and site runoff will drain to an appropriately sized oil/water interceptor prior to connecting to the municipal sanitary system. The storm water system will consist of area drains, roof drains and over-flow drains. Reclaimed water will be used for landscaping at new City facilities, as required per the San Francisco Green Building Code Amendments and GS6 Form for municipal projects.

3.11 Fire Protection Systems

The NPE shall comply with all requirements and criteria (for safety, security, and reliability) to design, furnish, and install a complete and integrated fire protection system. The hazard and coverage requirements for fire protection systems shall be established in conjunction with the City and Authority Having Jurisdiction (AHJ). Provide fire suppression systems in compliance with San Francisco Building Code, San Francisco Fire Code, NFPA 13, 14, 30A, and 88A. Emergency Responder radio signal shall cover the entire Facility, in compliance with the San Francisco fire code. The need for a fire pump will be determined by the fire suppression designed and available fire water pressure in the existing system.

For the Bus Yard Component, a risk analysis shall be conducted to demonstrate to the satisfaction of the City that the required active and passive fire protection systems can be expected to provide a level of performance equivalent to that envisioned by regulatory requirements. For areas where buses are garaged, the number of buses assumed to be involved in a fire scenario shall be rationally justified. The risk analysis shall include the basis for assumptions about fire growth, fire spread amongst buses, and fire department response time. It shall also

consider performance of active and passive fire protection systems with respect to a fire scenario which may exceed traditional material performance testing criteria.

The fire protection experts on the detailed design team will be responsible for devising a robust fire protection system for the Facility that minimizes risk to the Housing and Commercial Component. Their review and recommendations will include, but not be limited to, the location, ventilation, and fire suppression systems for the Bus Yard Component, as well as for the Housing and Commercial Component. Consistent with California Fire Code, Section 1206.2.11.3, minimum continuous ventilation in battery storage rooms shall be the greater of 1 CFM/SF or 150 CFM, and shall follow any additional guidelines within the California Building Code and California Mechanical Code. Current and potential future EV Charging Areas shall include provision for ventilation compliant with California Building Code Section 1202.2 and California Electrical Code Section 625.29. This requires ventilation by parking space based on the type of charger serving the location. Ventilation requires proper supply and exhaust, which can be achieved through active supply ventilation or direct outdoor exhaust with passive intake.

The final design of the fire protection system shall be completed by a C-16 licensed fire protection contractor based on design criteria developed by the Non-Profit Entity's Fire Protection Engineer. The design criteria shall be informed by the risk analysis referred to above and by regulatory requirements. The system shall be hydraulically calculated. Sprinkler system occupancy hazard classification, minimum density and maximum sprinkler spacing and standpipe requirements shall be determined in concert with the AHJ. Street hydrant flow test data will need to be determined during the PDA phase.

3.12 Electrical

3.12.1 Systems Overview

Basic electrical systems requirements for the Project include powering the mechanical systems, maintenance equipment, convenience receptacle power, interior and exterior lighting systems with controls, an addressable fire alarm system and to provide power to other utilization pieces of equipment through the Facility.

The electrical distribution system shall be set up to allow for charging of the future electric bus fleet and all electric non-revenue vehicles as shown in Table 2.E of Section 2 in the Space Needs Program.

3.12.2 General Facility Requirements

As a municipal City department, the SFMTA partners with the San Francisco Public Utilities Commission (SFPUC) as electrical provider. The SFPUC operates Hetch Hetchy Power, a Publicly Owned Utility. The SFPUC relies upon PG&E's transmission and distribution grid to serve its customers, for which PG&E receives a fee. This situation, with the lack of designated service territory boundaries between the two utilities, is unlike any other in the country, and greatly limits the SFPUC's visibility into PG&E's grid infrastructure and capacities. PG&E does not provide feeder capacities unless the SFPUC applies for service through the Wholesale Distribution Tariff (WDT), a costly process that requires up to three years for PG&E to perform a System Impact Study to determine the available new load capacity.

Under the WDT, each SFPUC customer inter-tie point is viewed by PG&E as a utility-to-utility connection. As such, PG&E applies the rules of the WDT to each SFPUC customer connection. Upon completion of the review, any grid or infrastructure upgrades required by PG&E are borne solely by the SFPUC customer.

In March 2021, SFMTA submitted two Wholesale Distribution Tariff (WDT) electrical service applications to the SFPUC. The first application ("Feeder 1") focused on the industrial uses intended for battery electric bus (BEB) charging loads, and the second application ("Feeder 2") focused on the mixed-use housing and retail loads and remaining BEB loads. Both applications and supporting materials were based on a total projected load predicated on the RDC. These two original electrical service applications are attached to this DCD in Appendix C, for reference.

In March 2023, PG&E issued to the project a System Impact Study (SIS) report in response to each of the two WDT service applications. In the time since the original applications were submitted in March 2021 and the SIS reports were issued, SFMTA has determined that the transition to BEBs at the Potrero Yard Facility will be deferred to a later date no sooner than 2040 (reference Division 5 Battery-Electric Bus Supplemental Criteria). As a result, the project will proceed DocuSign Envelope ID: 580479DF-30FF-46C3-8388-378A8FFFEE7A with one electrical service application for mixed-use that will serve all Project load demands required for the Bus Yard Component, Joint Development Alternative 1 Housing and Commercial Component (reference Division 1 General Provisions, Project Description).

The SIS report for the mixed-use service application is attached to this DCD in Appendix, for reference. While this SIS report reflects an assumed maximum net electrical load demand to be 7.8MW, NPE shall work with PG&E to

ensure that the new electrical service enabled through the mixed-use service application provides for the total load demand for the Project and all of its components. To this end, NPE shall ensure that the total load demand for the Project falls within a capacity of 11MW as delivered through this new electrical service.

NPE shall make provisions for the portion of the total 11MW electrical service that provides DC traction power to the electric trolley buses to be able to be completely isolated from the rest of the Infrastructure Facility electrical distribution, so that SFMTA maintains operations, maintenance, metering, and functionality, with the ability to monitor, isolate, or de-energize at their sole discretion. Reference section 3.12.3 through 3.12.6 in the DCD for further explanation of salvaging and reconnecting the existing traction power feeder B-3 to power the electric trolley fleet in the new Facility.

The SIS report in Appendix H describes the anticipated off-site utility improvements required to be performed. NPE shall perform all work (design, traffic control, demolition, excavation, shoring, trenching, coordination with PG&E construction crews and inspectors, install new / modify existing utility vaults, install conduit, install new duct banks, soil and debris off haul, backfill, paving, sidewalk restoration) and obtain the necessary permits to enable PG&E's design provided in the final Service Agreement. NPE's scope of work will be finalized once PG&E produces and transmits the final service agreement to the project.

Power for the Facility will be 480V/277V, 3 phase, 4 wire, with solid neutral. All equipment with a large electrical load will be served at the highest voltage possible, 480V, 3 phase[8]. A transformer will step down the voltage to 480V.

The electrical distribution system will be segregated by the type of load; life safety, critical emergency, and optional emergency power loads. Loads shall also be separated by lighting, industrial, receptacle, and mechanical equipment. Provisions to monitor these load through meters shall not be initially installed; however, the design shall allow their installation in the future. An ATS shall be provided for each of the emergency systems provided for the facility. ATS's shall be provided with programmable testing, generator start-up, and connected to a building information system to monitor the status of the emergency system.

CALGreen receptacle control will be achieved by tying receptacle control devices into the lighting system control panel. The Lighting System occupancy sensors will be utilized to turn off 50 percent of the receptacles within a room when the room is not occupied.

Electrical charging for non-revenue vehicles shall be installed per code minimum.

3.12.3 SFMTA Traction Power Network

The SFMTA's traction power network is comprised of 28 substations and 45 independent feeds, which together deliver Direct Current (DC) traction power to about 500 route miles of overhead catenary system and serve 3 different modes (electric trolley buses, historic streetcars, and light rail trains). The network delivers DC traction power at a nominal voltage of 650 VDC, and the SFMTA electric trolley bus vehicles are suited to run on that system. The total capacity of the traction power network is approximately 180 MW. The SFMTA's utility provider to this network is PG&E.

SFMTA electric power distribution network connects the DC output from various substations through power cables routed in underground duct banks to the overhead contact system.

3.12.4 Potrero Yard Traction Power System

The electric trolley buses at Potrero Yard are fed from the Bryant Street substation. One feeder circuit (Feeder B-3) is reserved specifically for electric trolley buses in the yard, and another feeder circuit (Feeder B-7) powers the OCS right-of-way ROW around the yard for service adjustments and transitions. The overall power system feeder diagram and individual diagrams for the on-site feeder and the feeder that circles the right-of-way of the yard are attached and can be found in Appendix D of this Design Criteria Document.

The SFMTA requires that the traction power system be safely disconnected when the yard is demolished and that the new facility Facility be reconnected to the traction power system to serve the overhead catenary powering and charging the vehicles in the yard and supporting the transition to revenue service in the right-of-way. This section provides relevant information to support that process.

Potrero yard will be expanding the number of electric trolley buses (ETB) stored there as a result of the delayed transition to a full replacement of ETB with battery charging electric buses. To accommodate this change and to ensure reliable power availability in the yard, electrical capacity to power the expanded ETB fleet will be provided by a combination of the reconnected and reconfigured existing traction power Feeder B-3 and utilizing a portion of the new 11 MW electrical service to be delivered through the WDT electrical service application process.The traction power distribution to be provided by the combination of

this new traction power feeder distributed from the new 11 MW electric service and the existing Feeder B-3 shall be designed and installed so that the electric trolley bus load is divided approximately equally among these two power source feeders. Each feeder section shall be spatially continuous to minimize interface between the two feeder sections and to minimize areas that would require both feeders to have power switched off and be grounded in order to be made safe. A load rated disconnect switch shall be provided to allow for connection or isolation of the B-3 feeder and the new traction power feeder.

Similar to the new traction power feeder, NPE shall make provisions for the reconnected and reconfigured Feeder B-3 to be able to be completely isolated from the rest of the Infrastructure Facility electrical distribution, so that SFMTA maintains operations, maintenance, metering, and functionality, with the ability to monitor, isolate, or de-energize at their sole discretion.

Appendix F contains security sensitive information that must follow the required processes and procedures set forth in Appendix F, for access to traction power related specifications.

3.12.5 Isolating and Disconnecting the Traction Power System for Demolition

Within the yard boundary, specifically for the feed serving the yard, the process for disconnecting the traction power feed is straightforward because the feeder circuit is dedicated to the yard. Standard process to rack out and lock the feeder, verify de-energization, and place protective ground is required. The NPE shall coordinate closely with the SFMTA on this process.

For work in the right-of-way around the yard, the circuit is a lot more widespread and will require a local isolation. Right-of-way work requires close coordination with the SFMTA. NPE shall submit each phase of design drawings for SFMTA review.

NPE is responsible for designing and performing all traction power disconnection and reconnection procedures, in close coordination with the SFMTA.

3.12.6 Reconnecting the Traction Power System to Serve the Trolley Bus Fleet

Upon completion of the Facility, the trolley bus charging function and all transitions to revenue service (navigating from Mariposa Street into the Project Site) must return to the SFMTA traction power system practice. This will require close coordination with the SFMTA to ensure a seamless reconnection. The electrical design and built connection must be accepted by the SFMTA to confirm that it meets SFMTA specifications before plugging into new system. To design the reconnection, the NPE shall use the feeder map shown in Appendix D to understand how electricity is currently distributed through the yard. NPE shall follow all California General Orders and references pertaining to electrical utilities, including, but not limited to the list contained in Appendix B: SFMTA OCS Design Criteria.

3.12.7 Existing Traction Power Circuit Condition and New Traction Power Circuit Cable Path

The existing traction power distribution circuit servicing Potrero Yard from the Bryant Street Substation is approximately 40 years old. Once SFMTA completes the initial study as described in section 3.12.4, the City will inform the NPE regarding any further site due diligence expected to be performed jointly between the NPE and the SFMTA.

3.12.8 Fire Alarm System

A fully addressable fire alarm system shall be provided for the Facility. The fire alarm system shall contain sufficient activation devices (i.e., pull stations, smoke detectors, heat detectors, UV/IR detectors, etc.) as required by Code and additional detection necessary to achieve the overall fire safety goals. It shall monitor the building's sprinkler system and provide occupant notification in the case of a fire event. Premise monitoring shall be provided by an off-site entity in accordance with NFPA 72.

3.12.9 Lighting

Interior Lighting:

Lighting systems for the Facility shall utilize LED light sources with dimmable drivers. Daylight harvesting shall be utilized wherever practical. Daylight sensors shall be installed to allow the dimming of the LED lights when there is enough natural daylight within the space. Occupancy and vacancy sensors will be incorporated into a low voltage lighting control system for all interior and exterior lighting systems. All offices and small rooms shall be provided with occupancy sensor(s) as required for full room coverage. The Facility's lighting control shall operate on the following properties:

- An addressable lighting control system shall be provided. The system shall be programmed with normal building operational hours and shall turn the lights on and off in compliance with the hours of operation.
- All regularly occupied spaces such as offices shall be provided with vacancy sensors. All other spaces such as bathrooms, janitor closets, back of house shall be provided with occupancy sensors. All sensors shall turn off the lights after 5 minutes of no occupancy.

- All areas with natural daylight shall be provided with daylight harvesting. Once the sensor picks up enough daylight within a space the lighting control system shall dim the LED luminaries. The luminaries shall be dimmed to a minimum level of 10 percent while maintaining design fc levels.

Exterior Lighting:

Site lighting fixtures will be an LED light source with a dimmable driver. The fixtures will be controlled by a programmable low voltage lighting control panel. Luminaries shall be provided with occupancy sensors. The required control of the exterior lighting shall be:

- An addressable lighting control system shall be provided. The lighting control system shall contain an astronomical time clock and input from a photo sensor. The lighting control system will turn on the lights at dusk so that the lights are on at the start of the normal parking lot hours. The lighting control system shall turn the lights off at either the scheduled time, or dawn (whichever is first).
- After 11:00 PM the luminaries shall reduce to 25 percent light output. If a luminaire senses motion, that luminaries shall increase brightness to full bright. After 10 minutes of no motion the luminaries shall drop back down to 25 percent.
- All staff entrances and exits should have pedestrian level lighting for staff circulation safety.

3.12.10 Emergency Power

The Bus Yard Component shall be provided with an emergency generator which will allow the Facility to operate for the minimum code required duration, at limited capacity in the event of a power outage or emergency. The emergency generator must be designed to provide power to Life Safety Loads, Critical Electrical Loads, and Additional Emergency Loads. In addition to this Section, refer to Section 3.8.1 for the resilience and recovery requirements for the Facility.

Generators shall be designed and installed to meet all applicable codes.

The following list of items must be on emergency power (NFPA 110 requirement included):

Life Safety Loads:

- Pathway egress lighting
- Exit lighting
- Fire alarm systems
- Other loads to ensure human life safety

Critical Electrical Loads:

- IT/Data rooms and systems
- Security systems
- Communications systems
- HVAC equipment serving these spaces
- HVAC control system
- Elevator(s)
- Fume ventilation systems

Additional Emergency Loads:

- Automatic garage door openers at entrance and exits of the facility.
- Four maintenance bays- SFMTA with the assistance of the NPE to specify which during the PDA phase.

There are lift safety loads on the generator; the Life Safety Code and NEC requires an uninterruptible fuel source for the generator. Permission is required by local AHJ to verify the generator is uninterruptible.

3.12.11 Electrical Communications

Electronic Communications System Overview:

Communications systems shall include a Structured Cable System, Public Address (PA) System, and a Telecommunications Grounding Connection. The general systems and basic operations of the communications system are covered in this section.

Governing Codes:

California Electrical Code (CEC) provides minimum safety requirements for these systems. Design and installation shall be based on the CEC, BICSI, and IT best practice and manufacturer's recommendations. Structured Cable System pathways shall be based on current telecommunications performance standards.

Public Address (PA) System:

Amplifiers and speakers shall be provided throughout the Facility and will be accessed through the telephone system or dedicated microphone. PA speakers must be strategically placed within the Facility allowing the PA system to provide uniform sound coverage for all PA announcements.

Structured Cable System:

Structured Cable System pathways will be provided for City-provided equipment including, but not limited to: wireless access points (full building coverage), administrative workstations, shop workstations, and fuel stations.

IT space requirements depend on total number and sizes of the workspaces. See Table 3.G for workspace details.

General industry standards shall be followed for wiring and wiring runs. Category 6 cables generally cannot be longer than 100 meters.

SECTION 3 - DESIGN CRITERIA NARRATIVE

TABLE 3.G - NETWORK CABLES

NETWORK CABLE (QTY.)	19" RACKS	SPACE NEEDED
0 - 100	Half rack	3' x 3'
0 - 300	1	10' x 6'
301 - 600	2	10' x 8'
601 - 900	3	10' x 10'
901 - 1200	4	10' x 12'
1200 - 1500	5	10' x 15'

Telecommunications Rooms:

The Bus Yard Component shall have a Main Telecommunications Room (MTC) for the Main Distribution Frame (MDF), security equipment, routers, core switches, and servers. Provide two four inch conduits to the MTC from the Main Point of Entry (MPOE) to facilitate current program and future growth. The MTC shall include two to four empty network racks for potential equipment. Telecommunications Rooms shall be provided as required to provide connectivity and house the Intermediate Distribution Frame (IDF) for all work stations. TC rooms shall have two-inch conduit paths back to the MTC. All rooms shall be designed for future expansion and be equipped with equipment racks and cable management systems for organized and efficient cable routing. A 48-strand fiber optic cable (single mode) running from MTC to TCs is required.

Grounding System:

A telecommunications grounding will be implemented to protect telecommunications equipment. The telecommunications grounding system shall be connected to the Electrical Safety Grounding System.

3.12.12 Electrical - Security

Electronic Security Systems Overview:

Security Systems include a Video Surveillance System (VSS), and an Access Control System. Security system devices shall be strategically placed throughout the Facility based on the SFMTA input during the PDA phase, best practice, and industry standards.

Governing Codes:

The CEC provides minimum safety rules for these systems. Design and installation shall be based on the minimum CEC requirements, best practices, and manufacturer's recommendations.

Systems Monitoring:

Security Systems will be monitored from the operations or general manager office with exact locations to be determined during the PDA phase. Bus Yard Component will provide cameras and monitoring for the bus yard major entrance and exits.

Video Surveillance System (VSS):

The NPE shall use a SFMTA approved VSS system that interface with our network software, etc. and to provide real time recording of critical areas and the parking areas. Strategically located cameras will be required in designated areas for video monitoring and recording for forensic use. At a minimum, all entrances and exits shall be covered. The cameras shall be IP based (minimum 1080P) and compatible with the SFMTA standards. Camera selection and placement will be determined during the PDA phase in consultation with the SFMTA. Required camera placement and field of view shall be shown on the floorplans. The SFMTA expects that available camera models may improve by the time construction is completed and therefore will do a final review of the camera selection and supporting infrastructure prior to their ordering and installation. The SFMTA maintains a list of approved camera models that have been tested and are approved. The SFMTA will review the VSS halfway through the design.

Access Control System:

A card access system shall be provided that is compatible with the existing SFMTA system to allow access to the site gates, building staff entry, and critical areas.

The existing SFMTA access control system works as follows. Each SFMTA employee has an access card that is encrypted with a facility code and card number. This information is programmed into a Honeywell ProWatch Data Base by an SFMTA Administrator. The card is then waived in front of a card reader at a door, elevator, or any other location that requires a card reader for access. The card reader reads the information from the access card, and if the employee has access, the door or elevator will open or operate as normal. The door and card reader have wires running to it from the Access Panel usually installed in the IDF closet. The Panel then is tied into the SFMTA network. The power supply is tied into the access panel, and the panel has a relay that pulses the power supply when it receives a positive card read.

Building Access Doors:

Entrance into the Bus Yard Component through building doors and at all emergency egress routes shall be controlled by a card reader system. When a valid RFID card is presented to the local card reader at the door, the lock will be opened, allowing ingress. Entrance gates shall also be capable of functioning on a schedule. For example, gates

for bus and delivery entry may be left open during business hours for free ingress/egress, but after-hours ingress may be controlled by the card reader system.

Intercom System:

The Facility shall be equipped with an intercom system consisting of two-way intercom stations located at locations to be determined during the PDA phase in consultation with the SFMTA. The intercom system shall be IP based and must be compatible with existing SFMTA standards. The intercom system shall be interoperable with the access control system as ingress or egress requests can be made from an intercom station.

Uninterruptible Power Supply (UPS) System:

A UPS system shall be provided for security electronics to allow security electronics, network equipment, and phone system to maintain function in the event of a power interruption. This system is on emergency generator power system and a rack mounted UPS with 15 to 30 minute battery back-up for system ride through during power outage events shall be provided. Determine during PDA phase with consultation with SFMTA. Other customized IT systems such as Radio, Computer Aired Dispatching, Fleet Watch, and others shall be addressed in detailed design in coordination with the SFMTA.

3.13 Solid Waste Disposal

A single consolidated location for the Bus Yard Component is required for recycling, composting, and landfill waste. Waste shall be delivered to receptacles through trash chutes running from the Bus Yard Component. The trash facilities shall include a 30-yard recycling compactor fully accessible to garbage collection vehicles. The trash area shall be well lit and ventilated to avoid noxious smells. The drawing package shows approximate location for waste area, final sizing, design, and equipment will be determined during detail final design. The waste area must be compliant with Chapter 19 of the Environment Code and the City and County of San Francisco.

This section of the code deals with waste disposal, the three waste streams (recycling, landfill, composting), and compliance monitoring.

3.14 Compressed Air and Lubrication Distribution Equipment

The compressed air and lubrication distribution systems are two important aspects of a facility that provide ease of use for the mechanics working in a multi-bay facility. The compressed air and lubrication piping will need to be sized properly to support the shop equipment throughout the facility. The lubrication equipment needs to support the vehicles being serviced for the facility to be most efficient. Table 3.H provides comparison details for reciprocating and rotary screw compressors.

There are several factors to be considered in the appropriate compressed air and lubrication system selection including (but not limited to):

- Number of bays
- Lubrication fluids needed at each location
- Length of longest piping run
- Monitoring technology

Rotary Screw Compressors:

These types of compressors use two rotors or helical screws to compress air to produce compressed air. Rotary screw compressors are quieter than piston units, allowing a quieter work environment while operating relatively energy-efficiently. Operating temperatures are at least 100 degrees F cooler than piston units, resulting in longer life. Rotary screw compressors are most efficient when in constant operation because they require approximately six minutes to ramp down from compression duty. During this time, the compressor is not fully loaded but still requires some amount of power input that does not produce any compressed air.

However, the amount of time required to ramp down from compression duty will be reduced to about 20 seconds when the unit is operated by a variable frequency drive (VFD).

The maintenance (long-term) cost of a rotary screw compressor is one major drawback because the more complex equipment with electronic components requires more regular maintenance compared to piston-type compressors. However, because screw-type compressors do not operate with as much friction as piston-type compressors, the frequency of maintenance is significantly less than piston-type compressors.

Reciprocating Piston Compressors:

Piston compressors are typically used for general-purpose applications such as workshop/air, where the air is used for hand-tools, cleaning dust, small paint jobs, etc. It is one of the most commonly used compressor types. Piston compressor are available from 1 HP to about 50 HP. The motors can be duplicated (duplex) in effort to double the power output (horsepower) and can then be configured in a lead-lag operation to ensure equal wear on the motors.

Piston compressors are more economical below 30 HP and work well in maintenance shops as they are more suitable for high pressure (175 PSIG or more) applications.

Piston-type compressors have a simple design and can be more easily fixed by facility maintenance staff compared to a screw-type compressor.

There are a few drawbacks to piston compressors such as excessive noise, high outlet temperature, and high oil content in air piping. These can all be mitigated through engineering a system appropriately.

Refrigerated Air Dryers:

An air dryer is an integral piece in compressed air treatment system. Air quality can have a significant impact on compressed air tools and equipment. Properly treated compressed air, and the right air dryer, will improve productivity, system efficiency, and product or process quality. Refrigerated air dryers are specifically designed to handle the high discharge temperatures of piston compressors. The purpose of using a refrigerated air dryer is to remove entrained moisture in the air to prevent corrosion in air tools with moving steel parts. Refrigerated dryers typically provide dew points of 40 degrees F at rated conditions.

A few filters are required to be used in compressed air systems. The particulate air filter is downstream of the compressor and upstream of the dryer. This type of filter removes any dust or particulates in the air. The second filter located downstream from the dryer is the coalescing air filter, which removes the excess oil and water left in the air by the compressor and the dryer.

Desiccant Air Dryers:

These types of air dryers do not require power to dry the air, as is the case with refrigerated air dryers. These types of dryers utilize a filter that captures the entrained moisture in the compressed air. Desiccant dryers trap so much of the moisture from the air that they typically reduce the dew point temperature to -40 degrees F.

TABLE 3.H - RECIPROCATING VS. ROTARY SCREW AIR COMPRESSORS

RECIPROCATING	ROTARY SCREW
Cost advantage as single-acting, air cooled unit below 30 HP	Used more in 150 PSIG, lubricated air systems above 30 HP
Double-acting units used in 175 PSIG and in non-lubricated applications	Used for constant volume, variable pressure applications
Normally used for heavy duty, continuous service	Oil or water is used for sealing and cooling
High overall efficiency	Must vent reservoir to lower power consumption when unloaded
Operates efficiently at partial loads	Delivers high air volume in a compact space
Saves horsepower under no-load conditions	Smooth pulse-free output
High maintenance costs	Easy to install and maintain
Requires heavy (concrete) housekeeping pad	Low vibration

Compressed Air Receivers/Tanks:

Air receivers are pressure vessels that store treated or untreated compressed air. The air stored in these vessels alleviates the frequency of starts required by the compressor whenever compressed air is used. Some reciprocating and rotary screw compressors can be mounted on an air receiver, but some are base/floor-mounted.

Bulk Fluid Storage Tanks:

Bulk Storage Tanks allow facilities to store large quantities of fluids while meeting required codes with double wall containment. Tanks can be monitored to promote more efficient product inventory control and throughput data. Tanks are available in sizes from 100 gallons to 50,000 gallons based on the frequency that the facility wishes to receive fluid deliveries. These tanks can also be utilized for waste/ used fluids such as used oil and used coolant. Tanks are typically stored in a central location along an exterior wall for reduced piping lengths and ease of delivery and extraction of bulk fluids.

The amount of waste from empty bottles and jugs, the amount of time it takes to handle each bottle, and the amount of spilled fluid is greatly reduced when using bulk fluid storage tanks. Bulk fluid storage tanks typically hold amounts of liquid greater than 100 gallons for the use of all mechanics within the building.

A tank level monitor is an integral component of the storage tank and will signal the low-level condition at which point the lubrication distributor would refill the storage tanks. Storage tanks are also equipped with a sensor that signals an alarm to sound in the event of a leak.

Bulk fluid storage tanks are typically double-walled to conform to the code requirement for spill containment. Another method of containing leaks is to provide a recessed concrete pit in the bulk fluid storage room directly underneath the bulk fluid tanks. Whichever method is chosen, 110 percent of the storage capacity of the tank needs to be contained in the event of a leak, as required by code.

Delivery Pumps:

Fluids need to be pumped from the bulk fluid storage tanks to the point of application in the maintenance bays area.

Piston Pumps:

Pneumatically-powered piston pumps are powerful enough to transfer the fluid from the storage tank to the point of application, hundreds of feet away. Piston pumps can be mounted directly on top of the tank to dampen vibrations. Piston pumps are loud pieces of equipment (73 - 80 dB(A)). Noise dampening is one reason to enclose the lubrication storage area with heavy walls.

Diaphragm Pumps:

Diaphragm pumps can also be used to pump fluid from the bulk fluid storage room to the maintenance bays. These pumps do not offer any mechanical advantage – the pressure of the compressed air supply is equal to the pressure of the fluid at the discharge end of the pump at a low flow condition.

Diaphragm pumps are typically used for diesel exhaust fluid and engine coolant but are also capable of transferring engine oil, hydraulic oil, automatic transmission fluid, windshield washer fluid, diesel fuel, and gasoline.

Another special case involves the pumping of engine coolant when the coolant is provided as a concentrate. A 30-gallon drum of water with a float valve is typically specified when mixing the concentrated engine coolant with the water. The diaphragm pump handles the mixing duty to supply a mixture of coolant to water at the desired ratio.

Piping:

The size of each pipe varies according to the distance that the fluid travels from the storage tank to the point of application. To determine the size of the pipe required to ensure that fluid will transfer from the lubrication storage room to the point of application, the lubrication system designer will need to know how many dispensers stemming from the same pipeline header are requested to be in use at any given time. Generally, the pipe size increases as the demand of fluid flow increases. Wall thicknesses also need to be considered when selecting the pipe to provide the rigidity necessary to keep the pipe from bursting. The fluid pressure within the pipe is typically 1,000 PSI and even more for chassis grease.

The cross section of a header can be designed to decrease over the length of the run from the storage tank to the maintenance bays. This will help to decrease the cost of materials and will also ensure an acceptable fluid pressure at the point of application. The lubrication system designer calculates the size of pipe based on fluid mechanics equations.

The pumps are also sized in this way to ensure that the pipe length and the pumps are paired to dispense fluid at the furthest point of application.

The type of the pipe selection varies according to the type of fluid being transferred. Bulk fluid liquids may flow through carbon steel. Compressed air will be routed through copper to prevent corrosion. Compressed air does not require pipe of a high tensile strength because it operates at a comparatively low pressure than other fluids.

Lubrication/Commodity Hose Reels and Nozzles:

Lubrication hose reels are stationary units in the bays and piped from bulk storage tanks. These reels are in areas where maintenance and re-filling of fluids occurs, typically overhead on columns or mounted to nearby walls. Technicians can quickly dispense and measure fluids being dispensed into vehicles.

Hoses comprise the final length of fluid transfer material before exiting through the point of application (the nozzle). Hose reels offer the convenience of retracting the hose with no significant effort by the user to move the hoses out of the work space. This eliminates tripping hazards and it decreases the amount of time required to move the hose from the work area.

Multiple hose reels can be grouped in parallel and mounted onto the same bracket. In this case, the reels become a reel bank. Hose reels are typically installed overhead on columns, mounted to nearby walls, or are suspended from the ceiling structure.

Fluid Management System:

The volume of several types of fluids that the mechanics dispense can be tracked by use of the fluid management system.

The amount of each type of liquid can be monitored by the Fleet Manager to determine the appropriate time to order more bulk fluid from the distributor. The fluid management system tracks the amount of each dispensed liquid by each individual nozzle.

With the fluid management system, the user can enter the amount of fluid that they would like to dispense from the nozzle. The pump air controls will allow the transmission of compressed air to the pumps by the storage tank to allow pumping to commence.

Waste Recovery System:

When mechanics drain fluids such as oil and coolant from vehicles, a mobile receptacle is utilized to collect the used fluid. When the mechanics need to empty these containers, units can be rolled to nearby diaphragm pumps located in the maintenance area and used fluid can be pumped into respective storage tanks in the lubrication storage room. Tank level monitors are typically installed in the tanks to signal an alarm to sound when the tank gets above a certain level. When the tank is full, a used fluid evacuation company can be contacted to remove the used fluid from the storage tanks.

3.14.1 Equipment Manual

To provide further specificity and direction, HDR | MDG was asked in the Fall of 2018 to formulate specific equipment recommendations in consultation with SFMTA maintenance staff. Those recommendations are included in Appendix C and are also reflected in the equipment drawings within the Reference Design Concept document.

4.0 Introduction

The SFMTA envisions the rebuild Potrero Yard as an asset to the SFMTA's transit facility as well as a well-designed, contextual building that celebrates its core public transit use and sensitively designs interactions between untraditional shared uses. The architectural team designing the Potrero Yard Modernization Project shall have proven aesthetic design experience and talent to develop functionally economical as well as aesthetically attractive buildings. Design of the rebuilt Potrero Yard shall be informed by the Division 2 (*Design Guidelines)* of the Technical Requirements.

Coordinate exterior building design, locations for building functional areas and actual room dimensions by functional relationships, local zoning, codes, regulations, ADA requirements, and equipment.

4.1 Special Foundations

Special foundations to support combined building/crane columns, jib cranes, and laterally loaded piers/piles shall have appropriate geotechnical parameters based on soil testing and analysis. The effects of repetitive loads shall be taken into consideration for allowable bearing pressures, both vertically and horizontally. Rotations and deflections shall be limited to differential settlement and total settlement that meets the serviceability requirements of IBC for the given material.

4.1.1 Slab on Grade

The slabs on grade shall be placed atop engineered soils as required by NPE's Geotechnical Baseline Report. Provide continuous 15 mil vapor barrier meeting ASTM E 1745 Class A with a perm rating below 0.01 perms, immediately under slab over stone capillary break, under entire slab.

Design and locate joints to control and direct shrinkage cracking of concrete elements per ACI recommendations. Submit joint plan to the SFMTA for review and approval prior to placing exposed slabs and walls.

For all exposed concrete floors at maintenance areas, provide Euclid Surflex Light-Reflective Dry Shake Hardener sealed with Euclid Euco Diamond Hard or approved equal. For all exposed concrete floors at non-maintenance areas, seal with Euclid Euco Diamond Hard or approved equal. The manufacturer's recommendations shall be followed including the use/non-use of fly ash and various troweling methods.

If Integrally Colored Ground and Polished Concrete is selected as a floor finish, special requirements include:

- In areas where polished concrete floors are to be installed, NPE shall fine grade the sub grade uniformly flat using a laser device as described in "CPAA Recommendations for the Design, Specification, and Placement of Concrete Floor Slabs" from the Concrete Polishing Association of America.
- A below slab vapor barrier shall be installed in accordance with CPAA recommendations and shall meet all properties described therein.
- The mix design, placing and finishing of concrete shall comply with ACI standards and CPAA recommendations.
- Curing compounds and densifiers other than those that are included in the selected manufacturer's system shall not be used in areas of polished floor.
- Provide the following: Floor Flatness – specified overall value: 50, minimum local value: 35; Floor Levelness: - specified overall value: 30, minimum local value: 20. Flatness and levelness shall be tested within 24 hours after completion of the final troweling operation according to ASTM E1155 – 96 any out of tolerance work shall be remedied.

- Saw cut contraction joints shall be laid out by the Design Team and shall comply with CPAA recommendations.

4.1.2 Service/Inspection Lower Level Work Area

Service/Inspection LLWA's shall be provided a continuous membrane waterproofing system for the pit walls and floors. Provide a gravity perimeter underdrain system.

4.1.3 Waterproofing and Damp Proofing

All site retaining walls, below grade walls, elevator and LLWA pits, and or below grade conditioned or occupied spaces, shall be provided a full waterproofing system. Provide drainage board, protection board, waterproofing and footing drains. Insulation, when required, is preferred to be exterior to the structure. Acceptable products include:

- Under slabs on grade: Heavy-duty membrane comprised of an HDPE film, pressure sensitive adhesive and weather resistant protective coating. Preprufe 300R or approved equal.
- On vertical surfaces: Self-adhesive rubber/ bitumen polyethylene waterproof membrane meeting ASTM E154 and ASTM D570. Bituthane 3000 or approved equal.
- For sandwich slabs, plaza decks above enclosed spaces and green roofs: Hot-applied rubberized asphalt meeting ASTM E-96, Procedure E and ASTM D-5329. Hydrotech MM6125 EV system or approved equal.
- Water based hydrophobic admixture shall be used in the concrete for construction of floors and walls forming the elevator and service pits. Product: Hycrete W1000 (W1002 for air entrained elements) or approved equal.
- Provide physical (dumbbell) water stops cast into the work at all concrete joints in assemblies to be waterproofed. Use of expansion/bentonite strip type water stops are permissible with prior SFMTA approval.
- Damp proofing shall be odorless and meet ASTM D-1187 Type II and ASTM D-1227 Type III. It is required at below grade concrete stem walls that do not have a face exposed to view. Karnak Corporation, Karnak 100 Non Fibrated Emulsion Coating, or approved equal.
- Where exposed to view, provide above grade concrete and masonry with a breathable, clear-drying, water-based silicone emulsion. Weather Seal Blok- Guard and Graffiti Control II by Prosoco or approved equal.

4.2 Shell - Super Structure

The structural framing shall be designed to include wind and seismic drift.

4.2.1 Floor Construction

Floor framing shall be designed for the dead and live loads to be used in the facility. In addition to the standard live loads presented in IBC, floors shall support equipment loading.

Concrete slabs to comply with ACI composite flatness and levelness ratings. The following slabs shall have the ratings listed below:

- Shop and storage areas: Flatness 35, Levelness 25.
- Thin-set tile and resilient floor: Flatness 35, Levelness 25.
- Carpeted areas: Flatness 25, Levelness 20.
- Areas where polished concrete flooring has been selected: Flatness 50, Levelness 30.

4.2.2 Roof Construction

Roof framing shall have adequate strength and stiffness to prevent ponding. Equipment suspended from or set on the roof shall be included in the design of the roof members. Roofs shall have a slope of 1/4-inch per linear foot or minimum slope as required by the roofing system selected per manufacturer.

Roof access shall be provided for all roofs.

Provide CalOSHA compliant roof fall protection/restraint system for access to all roof areas. The design shall include the ability for maintenance to provide for safe and accessible cleaning of windows per ANSI/IWCA I-14 Window Cleaning Safety Standards.

4.3 Exterior Enclosure

The Potrero Yard, including the roofs, may be visible from both the street level and adjacent development around and above the site. The buildings, facades and roofs shall be visually pleasing. The SFMTA shall accept the project aesthetics prior to submittal for design review to the SF Planning Department. Exterior finishes selected must meet SF Planning requirements.

Sustainability requirements may also drive material choices. Energy Code requirements establish the minimum building envelope performance. In the event of a conflict, the most stringent code will apply. The building enclosure shall be designed to minimize the possibility of birds or other wildlife from nesting or otherwise taking up residence.

4.3.1 Exterior Walls

Exterior materials shall be considered on the basis of durability and appearance with the understanding that a minimum 50 year low maintenance life expectancy and 100 year minimum building lifespan is mandated. The SFMTA prefers the use of materials that require little refinishing or maintenance such as stainless steel, aluminum, glass, materials with anodized or factory finishes, materials with integral color, brick, terracotta, architectural pre-cast, or architectural exposed concrete.

Synthetic stucco, simulated materials such as river rock or other faux cladding, architectural foam detailing and aluminum, plastic, wood or vinyl siding will not be acceptable. Compliance with the City and County of San Francisco Development Standards is mandatory.

At a minimum, the bottom four feet above grade at vehicle entrances and exits of the building shall consist of a hard material such as masonry or concrete.

Coordinate all elements of the wall assembly, including flashing, trim and transitions between materials to provide a weatherproof installation requiring little maintenance, detailed to limit accumulation of dirt or staining.

4.3.2 Water and Air Barrier

Provide City and County of San Francisco Energy Code compliant, fluid-applied, vapor-permeable, water and air barrier membrane system.

Performance Requirements:

- Air barrier shall be capable of performing as a continuous vapor-permeable air barrier and as a liquid-water drainage plane flashed to discharge to the exterior incidental condensation or water penetration. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, penetrations, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits. Air leakage testing of the building envelope air barrier installation, as described in the Energy Code, is required prior to covering the air barrier.
- Membrane Air Permeance: (comply with current City and County of San Francisco Energy Code) Not to exceed 0.004 CFM by sf of surface area 4 at 1.57 pounds per sf pressure difference; ASTM E2178 5.
- Membrane Vapor Permeance: Not less than 10 perms; ASTM E96/E96M; Air Barrier systems other than that listed above will be considered on a case by case basis and require the SFMTA approval.
- Acceptable Product: Air Block 17 MR by Henry Company with associated auxiliary materials to provide a complete system including but not limited to transition membranes, sheathing joint membranes, adhesives and primers, sealants and self-adhesive thru-wall flashing, or approved equal. Obtain complete air barrier system from a single source.

4.3.3 Weather Barriers

Non-occupied/non-conditioned locations only: Provide a complete weather resistive barrier for all wall assemblies requiring weather protection.

Provide flexible flashing as required to form a weather tight envelope. All openings to be fully wrapped with waterproof flexible flashing with joints shingle lapped. Seal all penetrations through the weather resistive barrier to create one continuous weather barrier enclosure.

Provide Weather Resistive Barrier as made by Vaproshield, or approved equal.

Provide Waterproof Flexible Flashing Blueskin by Henry, Vycor by Grace or approved equal.

4.3.4 Exterior Masonry

The following technical requirements shall be met by the Design Team if masonry is selected as a part of the building enclosure:

Unit Masonry, General:

- Unit masonry shall be utilized in a cavity wall that functions as a rain screen. Painted masonry will not be allowed.
- CMU is not permitted for the exterior.
- Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6.
- Where unit masonry is selected as a building material, design the building utilizing masonry module, both in plan and elevation, ensure coursing is designed for either full or half block for overall dimensions, control joints, and at all openings.
- Substrate supports for veneer masonry to have a maximum horizontal deflection of 1/720 of the wall height.
- Where exposed to view, provide above grade concrete and masonry with a breathable, clear-drying, water-based silicone emulsion. Weather Seal Blok- Guard and Graffiti Control II by Prosoco or approved equal.

Performance Requirements:

- Provide structural or non-structural unit masonry that develops indicated net-area compressive strengths at 28 days.
- Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ ACI 530.1/ASCE 6.

Concrete Masonry Units:

- Integral Water Repellent: Provide units made with integral water repellent such as Dri-Block.
- CMUs- Standard, Decorative and Pre-faced: ASTM C 90
  - ✓ Ground face may be used for unpainted exposed locations on the interior the maintenance facility.
  - ✓ Textured block faces (split face, ribbed etc.) are not acceptable.

- ✓ Painted CMU on the exterior of the building is not acceptable.
- ✓ Concrete Building Brick: ASTM C 55.

Brick - Clay Face Brick:

- Facing brick complying with ASTM C 216 SW or hollow brick complying with ASTM C 652, Class H40V (void areas between 25 and 40 percent of gross cross-sectional area). No oversized brick allowed. Norman modules preferred.
- Embedded Flashing Materials- Provide continuous flashings at base of wall, heads of openings and under wall caps.
  - ✓ Metal Flashing: Provide metal flashing complying with SMACNA's Architectural Sheet Metal Manual. Use one of the following:
    - ○ Stainless Steel: All through wall flashings shall be 26 gauge, three way keyed stainless steel ASTM A 240/A 240M or ASTM A 666, Type 304. Where flashing is exposed at the touch zone (less than 9-feet 0-inches) the gauge shall be 24 gauge stainless.
    - ○ Flexible Flashing: Use only with the SFMTA approval.

Miscellaneous Masonry Design Requirements:

- Ties and Anchors:
  - ✓ General: Ties and anchors shall extend at least 1-1/2-inches into veneer but with at least a 5/8-inch cover on outside face.
  - ✓ Utilize adjustable type 316 stainless steel ties installed in horizontal joints at not less than one metal tie for 4.5 sf of wall area spaced not to exceed 36-inches o.c. horizontally and 16-inches o.c. vertically. Stagger ties in alternate courses.
  - ✓ Provide additional ties within 12-inches of openings and space not more than 36-inches apart around perimeter of openings.
  - ✓ At intersecting and abutting walls, provide ties at no more than 24-inches o.c. vertically. Acceptable product: Hohmann and Barnard DW-10 or approved equal.
- Weep/Cavity Vent and Drainage Products:
  - ✓ Provide both, weeps at the base of the cavity and a minimum equal number of vents at the top of the cavity. Maintain clear airflow space of 1-1/2-inches minimum to face of insulation. Open head joints with mesh required in lieu of rope, tubes or formed inserts. Vertical compartmentalization is required such that no horizontal brick cavity space is longer than 25-feet. All building corners to be compartmentalized within 4-feet of the corner. Provide flashing (if at a control joint) or additional building insulation to back brick face such as to prevent horizontal air flow within the cavity.
  - ✓ Provide mortar mesh at all through wall flashings and lintel locations.
- Control Joints:
  - ✓ Control Joints in brick masonry walls shall be placed at openings, near corners, at wall intersections, changes in wall height and as described in the Brick Industry Association document Technical Notes 18A "Accommodating Expansion of Brickwork".
  - ✓ Control joints in CMU walls shall be placed at/near openings, near corners, at wall intersections, changes in wall height or thickness and as described in the National Concrete Masonry Association documents TEK 10-2C or TEK 10-3.
- Minimum 1-1/2-inch airflow space between masonry and insulation
- Steel Lintels shall be hot dipped galvanized, primed and painted per Prescriptive Specification 90 96 00 High Performance Coatings.
- Precast Concrete Coping, Trim and Cladding.
  - ✓ Precast coping units to be utilized for wall caps on masonry walls and veneer. Coping units to include slope for surface drainage and one inch minimum overhang with cast in drip.
  - ✓ Provide mechanical anchorage utilizing stainless steel materials. Provide sealant joints between all cap units and between adjacent materials.
- Submittals - Material sample(s), mock-ups, shop drawings, anchorage and reinforcing materials.

4.3.5 Metal Panels

The following technical requirements shall be met by the Design Team if a metal panel system is selected as a part of the building enclosure:

Warranties:

- Special Warranty: manufacturer agreement to repair or replace components of metal panel systems that fail in materials or workmanship within the specified warranty period. Failures include but are not limited to - structural failures (rupturing, cracking, puncturing); deterioration of metals and other materials beyond normal weathering. Warranty

Period: Two years from date of Substantial Completion.

- Special Warranty on Panel Finishes: manufacturer agreement to repair or replace metal panels that show evidence of deterioration of factory applied finishes within specified warranty period – including but not limited to color fading more than 5 Hunter unites when tested according to ASTM D 2244; chalking in excess of a No. 8 rating when tested according to ASTM D 4214; cracking, checking, peeling, or failure of paint to adhere to bare metal. Warranty Period: 20 years from date of Substantial Completion.

Minimum Performance Requirements Common to all panel types:

- Air Infiltration: Air leakage of not more than 0.06 CFM/sf when tested according to ASTM E 283 at a test-pressure difference of 6.24 lb/sf.
- Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the test-pressure difference of 6.24 lb/sf.
- Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss for a temperature change range of 120 degrees F, ambient; 180 degrees F, material surfaces.
- Provide a concealed fastener wall system with minimum 22 gauge panels.

Minimum Finish requirements:

- Two coat fluoropolymer (AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions), - Kynar 500/ Hylar 5000.
- Metal Wall Panels- Plate (Rain screen type):
  - ✓ Additional Minimum Performance Requirements:
    - Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency and indicate design designations from UL's "Fire Resistance Directory".
  - ✓ Acceptable Products: AEP Span: Prestige Series; Centria: FormaBond or FormaBond II; or approved equal.
- Metal Wall Panels – Insulated:
  - ✓ Additional Minimum Performance Requirements:
    - Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 72:
      - Wind and seismic loads per IBC; deflection limits for wind loads no greater than 1/240 of the span.
  - ✓ Fire-Test-Response Characteristics: Provide metal wall panels and system components with the following fire-test-response characteristics, as determined by testing identical panels and system components per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.
  - ✓ Fire-Resistance Characteristics: Provide materials and construction tested for fire resistance per ASTM E 119
  - ✓ Intermediate-Scale Multistory Fire Test: Tested mock-up, representative of completed multistory wall assembly of which wall panel is a part, complies with NFPA 285 for test method and required fire-test-response characteristics of exterior non-load-bearing wall panel assemblies.
  - ✓ Radiant Heat Exposure: No ignition when tested according to NFPA 268.
  - ✓ Potential Heat: Acceptable level when tested according to NFPA 259.
  - ✓ Surface-Burning Characteristics: Provide wall panels with a flame-spread index of 25 or less and a smoke-developed index of 450 or less, per ASTM E 84.
- Acceptable Products: MBCI eco-FICIENT panels; Centria Versawall or approved equal.

4.3.6 Precast Architectural Concrete

The following technical requirements shall be met by the Design Team if precast architectural concrete is selected as a part of the building enclosure:

Performance Requirements:

- A qualified professional engineer shall design architectural precast concrete units.
- Design Standards: Comply with ACI 318 and design recommendations of PCI MNL 120, "PCI Design Handbook - Precast and Pre-stressed Concrete," applicable to types of

architectural precast concrete units included in design.

- (As applicable) Calculated Fire-Test-Response Characteristics: Provide architectural precast concrete units with fire-resistance rating indicated as calculated according to ACI 216.1 (for precast concrete) or PCI MNL 124, "Design for Fire Resistance of Precast Pre-stressed Concrete," (for precast pre-stressed concrete) and acceptable to authorities having jurisdiction.
- Precast concrete units and connections to maintain clearances at openings, to allow for fabrication and construction tolerances, to accommodate live-load deflection, shrinkage and creep of primary building structure, and other building movements as follows:
  - ✓ Upward and downward movement of ½-inch.
  - ✓ Anchorage: Provide mechanical anchorage utilizing stainless steel materials. Provide sealant joints between all cap units and between adjacent materials.
  - ✓ Fabrication Tolerances: Fabricate architectural precast concrete units to shapes, lines, and dimensions indicated so each finished unit complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.
  - ✓ Finishes: Exposed faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints shall be uniform, straight, and sharp.
  - ✓ Submittals- Product data and samples, mock up and shop drawings.

4.3.7 Sheathing

The following technical requirements shall be met by the Design Team when sheathing is utilized as a part of the building enclosure:

Performance Requirements:

- Fire-Resistance Ratings: As tested according to ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- Do not use Plywood Sheathing, Paper-Surfaced Gypsum Sheathing, Cellulose Fiber-Reinforced Gypsum Sheathing, Cementitious Backer Units, Fiberboard Sheathing Extruded-Polystyrene Foam Sheathing or Foil-Faced Polyisocyanurate Foam Sheathing for roof or wall applications unless approved by the SFMTA.
- Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.
- Type and Thickness: Type X, 5/8-inch Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M
- Acceptable Products: DensGlass by Georgia-Pacific or approved equal (walls); DensDeck by Georgia-Pacific or approved equal (roof)

4.3.8 Cold Formed Framing

The following technical requirements shall be met by the Design Team when cold formed framing is utilized as a part of the building enclosure:

Performance Requirements:

- A qualified professional engineer shall design all cold formed steel framing.
- Cold Formed Steel Framing Design Standards:
  - ✓ Floor and Roof Systems: AISI S210.
  - ✓ Wall Studs: AISI S211.
  - ✓ Headers: AISI S212.
  - ✓ Lateral Design: AISI S213.
- AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100 and AISI S200.
- Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
  - ✓ Upward and downward movement of 1/2-inch.
  - ✓ Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- Fire-Resistance Ratings (where applies): Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- All cold formed framing to be galvanized, minimum G60.

4.3.9 Insulation

Provide insulation in walls, roof and under slab to meet or exceed the Energy Code requirements. Provide all insulation in thicknesses, widths, and lengths sized to fit applications and to meet code requirements. Exposed, faced, bagged or scrimmed insulation is not acceptable. All insulation materials integrated into the work shall NOT contain: added urea formaldehyde, nor halogenated flame retardants. All products and their manufacturing processes shall be CFC and HCFC free. Rockwool insulation materials in the form and density appropriate for the application and performance required unless noted otherwise.

- Accessories: Provide fasteners and adhesives required to attach insulation to substrates per manufacturer's recommendations.
- Insulation for Miscellaneous Voids: Spray Polyurethane Foam Insulation (Limited use only for penetration sealing): ASTM C 1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E 84.
- Below Grade Insulation: EPS – Expanded Polystyrene. Recycled preferred.(Benchmark Foam, Inc. for reference).

4.3.10 Sheet Metal Flashing

Acceptable materials: Stainless Steel ASTM A 240/A 240M Type 316 Finish 2B (bright, cold rolled).

Sheet metal (steel or aluminum) finished with same system as adjacent metal panels or storefront/curtainwall system or as approved by the SFMTA. Finish Warranty Period: 20 years from date of Substantial Completion.

4.3.11 Exterior Windows

Daylight glazing shall be incorporated to allow for a reduction in artificial lighting and shall meet or exceed the percentage required by the Sustainability Checklist. Daylighting strategies shall be incorporated in the design of all spaces including shop areas.

All exterior glazing shall meet fenestration performance requirements of the most stringent energy code. Glazing shall be located and designed so as to be accessible for cleaning and window washing attachment systems shall be provided as needed. Window frames shall be prefinished aluminum. Frames are required to be thermally broken.

Provide solid surface window sills, 3/4-inch thickness minimum, at all locations.

4.3.12 Glazing

Glazing shall perform successfully within an assembly that complies with the Energy Code, meeting or exceeding in performance the maximum U Value and SHGC for the assembly selected by the Design Team. All glazing shall be captured in a frame assembly. Butt-Glazed lites are not acceptable.

Acceptable manufacturers: Pilkington North America Inc, PPG Industries, Inc, AGC Glass Company North America, Guardian Industries, Saint-Gobain Corporation or approved equal.

The following technical requirements shall be met by the Design Team where glazing is utilized as a part of the building enclosure:

Warranties:

- Manufacturer's Standard and Special warranties for each product used.
  - ✓ Warranty Period: 10 years from Substantial Completion.
  - ✓ For each glass type and all glazing accessories – Obtain from single source from single manufacturer.

Performance:

- General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- Design: Engauge a qualified professional engineer, to design glazing.
- Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300 and Design Team Design Team per the applicable codes.
- Provide Float Glass per ASTM C1036.
- Safety Glass: ASTM C1172, and ANSI Z97.1, laminated and tempered as indicated or required by code.
- Heat Strengthened Laminated Float Glass (at overhead conditions including clerestories): Two sheets of heat strengthened 1/4-inch thick (minimum) clear float glass fully-bonded, high-impact, UV-resistant, clear polyvinyl butyl interlayer 0.030-inch minimum thickness;
- Laminated Glass (at skylights): Per DCM "Canopy glazing" Clear float glass with 65 percent VLT white interlayer to reduce glare and minimize visibility of dirt, unless approved otherwise by the SFMTA. Plastic, polycarbonate, fiberglass or similar skylights are not acceptable.
- Insulated glazing units: Provide sealed insulating glass: per ASTM E 2190, double pane; total unit thickness of 1-inch minimum. Inner and outer pane types subject to requirements at all glazing in conditioned spaces; Basis of Design: Solarban 70 XL manufactured by PPG or approved equal.
  - ✓ Interpane Space: Dry hermetic air, kept dry with a dehydrating agent; Edge
  - ✓ Seal Construction: Dual seal, silicone foam warm-edge spacer system with high-performance acrylic adhesive structural seal, backed with moisture vapor seal.
  - ✓ Edge seal color to be black.
  - ✓ Super Spacer by Edgetech IG.
- Vision Glass Units Performance: Subject

to conformance to requirements, provide sealed insulating glass units with minimum performance values based on units comprising an outer lite of 1/4-inch float glass, 1/2-inch air space and, inner lite of 1/4-inch clear float glass with Low E coating on second surface.

- ✓ Visible Light Transmittance: 69 percent; Winter Nighttime U-Factor: 0.29.
- ✓ Shading Coefficient: 0.44; Low Emissivity (Low E).
- ✓ Glass Low-e Coating: Soft, sputtered applied to third surface; hard, pyrolytic coating on second surface for over-size glass units.

- Provide glazing sealants that are compatible with one another and with other materials they will contact, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience. Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
- Structural Silicone Sealant for Glass Joints: Not allowed.
- Provide glazing accessories, including:
  - ✓ Lock Strip Gaskets: ASTM C542, ozone-resistant precision extruded neoprene or EPDM compound. Use gaskets with separate locking strips that are 10-points higher Shore A durometer hardness value than gasket body.
  - ✓ Fabricate gaskets in accordance with recommendations of ASTM C716.
  - ✓ Setting Blocks: Neoprene, EPDM or silicone, 80 to 90 Shore A durometer hardness tested to ASTM D2240. Maximum compression set to ASTM D395 and ASTM C864.
  - ✓ Spacers: Neoprene EPDM or silicone, 40 to 60 Shore A durometer hardness tested to ASTM D2240; quantity and location in accordance with IGMAC standards and as recommended by the frame and glass manufacturer.
  - ✓ Glazing Tape: AAMA 806.3, preformed butyl compound, UV resistant, self-adhering, coiled on release paper, color as selected by Owner's Representative; Pre-Shimmed Glazing Tape: AAMA 806.3, pre-formed butyl tape, UV resistant, self-adhering, integral continuous serrated synthetic rubber shim and release paper, color: black.
  - ✓ Glazing Wedges and Splines: Precision extruded neoprene or EPDM compound, UV resistant, 55 to 65 Shore A durometer hardness.
- Labeling:
  - ✓ Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
  - ✓ Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- Submit: 12-inch by 12-inch samples for each glass type with fabricator product information.

4.3.13 Storefront

The following technical requirements shall be met by the Design Team where storefront is utilized as a part of the building enclosure:

- For glazed Aluminum Storefront and Entrances provide self-supporting, factory prefinished, thermally broken, glazed aluminum tube framing system. Obtain all components of aluminum-framed entrance and storefront system, including framing and accessories, from single manufacturer.
- Basis of design: Model 433 manufactured by EFCO for aluminum storefront, or approved equal. Entrance Doors: EFCO D518 HD style or approved equal.

Performance:

- General Performance: Aluminum-framed entrances and storefronts shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
- Test according to ASTM E 330 as follows:
  - ✓ When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
  - ✓ When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
  - ✓ Test Durations: As required by design wind velocity, but not less than 10 seconds.

- Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
  - ✓ Fixed Framing and Glass Area: Maximum air leakage of 0.06 CFM/sf at a static-air-pressure differential of 6.24 lb/sf.
  - ✓ Entrance doors:
    - ○ Pair of Doors: Maximum air leakage of 1.0 CFM/sf at a static-air-pressure differential of 1.57 lb/sf.
    - ○ Single Doors: Maximum air leakage of 0.5 CFM/sf at a static-air-pressure differential of 1.57 lb/sf.
- Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
  - ✓ No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lb/sf.
  - ✓ Maximum Water Leakage: According to AAMA 501.1 no uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.
- Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

Minimum acceptable aluminum finishes:

- Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
- High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF or FEVE resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

4.3.14 Operable Windows

The following technical requirements shall be met by the Design Team where operable windows are utilized as a part of the building enclosure:

- Provide operable (casement or awning as approved by the SFMTA) prefabricated aluminum windows with thermally broken frames and insulated glazing to meet Energy Code and sustainability requirements. All windows shall have stainless steel screens and locking hardware. Finish to be manufacturer's standard Class I, coating that meets AAMA 2604. Clear anodic or two coat fluoropolymer (Kynar 500/ Hylar 5000) acceptable.
- Window performance: Windows shall conform to all AAMA/WDMA/CSA 101/I.S.2/A440-08 requirements for AW grade windows and shall meet all performance criteria of the basis of design product.
- Basis of Design: Series 2700 by EFCO or approved equal.

4.3.15 Glazed Aluminum Curtain Walls

The following technical requirements shall be met by the Design Team when a curtain wall system is utilized as a part of the building enclosure:

Warranties:

- Special Assembly Warranty: Manufacturer's standard 10 years from date of Substantial Completion.
- Special Finish Warranty: Manufacturer's standard 20 years from date of Substantial Completion.

Performance Requirements:

- Analysis and design data signed and sealed by the qualified registered professional engineer responsible for their preparation.
- General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those selected for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
  - ✓ Glazed aluminum curtain walls shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
  - ✓ Failure also includes the following:
    - ○ Thermal stresses transferring to building structure.
    - ○ Glass breakage.
    - ○ Noise or vibration created by wind and thermal and structural movements.
    - ○ Loosening or weakening of fasteners, attachments, and other components.
    - ○ Failure of operating units.

SECTION 4 - PERFORMANCE REQUIREMENTS

Structural:

- Test according to ASTM E 330 as follows:
  - ✓ When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
  - ✓ When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
- Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
  - ✓ Fixed Framing and Glass Area: Maximum air leakage of 6.24 lb/sf.
- Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
  - ✓ No evidence of water penetration through fixed glazing and framing areas when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 15 lb/sf.
- Water Penetration under Dynamic Pressure: Test according to AAMA 501.1 as follows:
  - ✓ No evidence of water penetration through fixed glazing and framing areas when tested at dynamic pressure equal to 20 percent of positive wind-load design pressure, but not less than 15 lb/sf.
  - ✓ Maximum Water Leakage: No uncontrolled water penetrating assemblies or water appearing on assemblies' normally exposed interior surfaces from sources other than condensation. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.
- Seismic Performance: Glazed aluminum curtain walls shall withstand the effects of earthquake motions determined according to applicable codes by Design Team
  - ✓ Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on building occupancy type when tested according to AAMA 501.6 at design displacement and 1.5 times the design displacement.
  - ✓ Vertical Interstory Movement: Complying with criteria for passing based on building occupancy type when tested according to AAMA 501.7 at design displacement and 1.5 times the design displacement.
  - ✓ Energy Performance: Certify and label energy performance according to NFRC. Fixed glazing and framing areas shall have U-factor of not more than that required by the most stringent Energy Code as determined according to NFRC.
  - ✓ Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than that required by the most stringent Energy Code as determined according to NFRC 200.
  - ✓ Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified condensation resistance rating of no less than 45 as determined according to NFRC 500.
- Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.

Minimum acceptable finishes:

- Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker
- High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat.
  - ✓ Acceptable manufacturers: Kawneer, EFCO or approved equal.

4.3.16 Window Treatment

Manual shades shall be provided for all fenestration including Exterior Operable Windows, Storefront, Exterior Windows, and Glazed Aluminum Curtain Walls.

4.3.17 Exterior Doors

Exterior doors must comply with the most stringent energy code requirements for thermal performance and air infiltration. Any stainless steel utilized in doors or door hardware shall be Type 316. Type 304 stainless steel will be unacceptable. Storefront doors shall be utilized at vestibule entrances to administrative and office areas.

All exterior doors, including roof access doors, shall be coordinated with the security/intrusion detection/access control system design for the facility.

4.3.18 Exterior Hollow Metal Doors and Frames

The following technical requirements shall be met by the Design Team where hollow metal doors are utilized as a part of the building enclosure:

- General: Maximum-Duty Doors and Frames: SDI A250.8, Level 4. Doors shall be 16 gauge.
- Physical Performance: Level A according to SDI A250.4.
- Frames: Metallic-coated steel sheet, minimum

16 gauge. All frames to be face welded, and of commercial quality cold rolled sheet metal in conformance with ASTM A1008. Exterior frames (frames from conditioned to unconditioned spaces) shall be thermally broken, constructed of hot-dip galvanized steel in conformance with ASTM A-653, G90 coating designation.

- Lites: Exterior hollow metal doors to have insulated glass narrow lites or half lites as directed by the SFMTA.
- Anchors: Masonry Type: Locate anchors not more than 16-inches from top and bottom of frame. Space anchors not more than 32-inches o.c., to match coursing, and as follows: Three anchors per jamb from 60- to 90-inches high.
- Stud Wall Type: Locate anchors not more than 18-inches from top and bottom of frame. Space anchors not more than 32-inches o.c. and as follows: Three anchors per jamb up to 60-inches high.
- Door Hardware: Locking and keying systems shall be fully compatible with the SFMTA standard system.
  - ✓ All exterior doors shall be coordinated with the security/intrusion detection/access control system design for the facility and shall comply with security standards.
  - ✓ Door and Frame Finishes: Doors and frames to be factory primed with galvalume primer compatible with top coats by the same manufacturer and then field painted. Exterior service doors and frames shall be finished with a high performance industrial coating.

4.3.19 Sectional Doors

The following technical requirements shall be met by the Design Team if sectional doors are utilized as a part of the building enclosure:

Special Warranty:

- Manufacturer agrees to repair or replace components of sectional doors that fail in materials or workmanship within specified warranty period.
  - ✓ Warranty Period: Minimum Two (2) years from date of Substantial Completion.

Performance Requirements:

- Structural Performance:
  - ✓ Design Wind Load: as determined by Design Team per applicable codes.
  - ✓ Deflection Limits: Design sectional doors to withstand design wind loads without evidencing permanent deformation or disengagement of door components.
    - ○ Deflection of door sections in horizontal position (open) shall not exceed 1/120 of the door width.
    - ○ Deflection of horizontal track assembly shall not exceed 1/240 of the door height.
    - ○ Seismic Performance: Sectional doors shall withstand the effects of earthquake motions determined according to ASCE/SEI 7 and as determined by Design Team per applicable codes.
- Doors:
  - ✓ Sectional door formed with hinged sections and fabricated according to DASMA 102 consisting of minimum 16 gauge galvanized steel exterior face and minimum 26 gauge steel interior face with polystyrene insulation with fire retardant additive to meet requirements of UL R-1894A. R-Value for door shall meet or exceed Energy Code requirements.
  - ✓ Operation Cycles: door components and operators capable of operating for not less than 25,000 cycles.
  - ✓ Air infiltration: Maximum 0.08 CFM/sf.
  - ✓ Track Configuration: Vertical Lift.
  - ✓ Provide replaceable weather seals at jambs, head and sill.
  - ✓ Provide Keyed lock (compatible with the SFMTA system) with interlock switch for automatic operator.
  - ✓ Provide kick plate
- Operator:
  - ✓ Electric Motor Operation: Provide UL listed electric operator, size and type as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. Operator shall meet UL 325/2010 requirements for continuous monitoring of safety devices.
  - ✓ Usage Classification: Heavy-duty, 25 or more cycles per hour and more than 90 cycles per day.
  - ✓ Motor Exposure: Exterior, dust, wet, or humid.
  - ✓ Emergency Manual Operation: Chain type.
  - ✓ Acceptable Safety/Obstruction Detection Devices (provide a minimum of one of the following): photoelectric sensor, electric sensing edge, pneumatic sensing edge.
  - ✓ Control Station: Interior and exterior, exterior location to be security access controlled.

- Finish: Door to be finished per system High Performance Coating.
- Acceptable Products: Model 418 by Overhead Door or approved equal.

4.3.20 Exterior Door Hardware

Alternate materials may be utilized with the SFMTA approval.

At a minimum, provide the following standard sets of hardware for exterior doors (single doors listed – adjust for pairs of doors accordingly):

Storefront doors: Offset Pivots (three minimum), surface mounted closer, push/pull set, exit device (as required by code), weatherstripping/sweep, threshold, entry/exit device (as applies) – the SFMTA standard card reader access control system and/or intrusion detection alarm. For doors without access control provide deadlock and cylinder.

Hollow Metal Personnel door: Hinges (3 minimum), mortise lockset, surface mounted closer, stop, exit device (as required by code), weatherstripping/sweep, rain drip, kick plate, threshold, entry/exit device (as applies), the SFMTA standard card reader access control system (as applies), door contact.

Hollow Metal Service Door (exit only): Hinges (three minimum), mortise lockset, surface mounted closer, stop, exit device (as required by code), weatherstripping/sweep, rain drip, kick plate, threshold, entry/exit device (as applies), the SFMTA standard intrusion detection (as applies),

Provide internal flush bolt for pairs of non-egress doors with an inactive leaf. Provide an automatic flush bolt and coordinator for doors with two active leafs.

4.3.21 Exterior Stairs

Exterior stairs shall be constructed of cast in place concrete with non-slip surface finish treads (Light broom finish with grooves cast directly in the treads).

4.3.22 Exterior Handrails and Guardrails

All handrails and top guardrails shall be stainless steel 316 with random orbital finish. Intermediate infill of railings may be stainless steel (preferred) or painted steel with highest durability paint system. Where welded wire mesh is used, use stainless steel or steel mesh with each joint welded prior to painting otherwise the joints will not be coated with paint and they will rust.

4.3.23 Roof Coverings

Roofing systems selected shall meet the most stringent Energy Code requirements for thermal and air barrier performance and shall meet LEED Gold certification requirements. Roofing must also meet all applicable City and County of San Francisco Building Code criteria as well as general recommendations and guidelines of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manuals. Selection of roofing systems shall be driven by a requirement for long term durability and appearance as well as sustainable criteria to reduce the Heat Island Effect. Roof deck coverings shall be UL listed Class A or Class B in accordance with the IFC and NFPA. Roofing design shall facilitate adequate shedding and diversion of water from the storm water system to use in landscape irrigation and water re-use systems. Flashing shall be either stainless steel, or steel with a baked on finish or factory finished to match metal panel systems.

If selected, metal panel steep slope roofing shall be of the architectural standing seam type and shall be replaceable without disturbing the building occupants. Metal roofing must comply with the NRCA Waterproofing Manual and the Metal Building Manufacturers Association (MBMA) Metal Roofing Systems Design Manual and provide adequate water-shedding with a focus on diversion of water from the storm water system to use in landscape irrigation or other water reuse systems.

If selected, low slope roofing shall be a single ply system such as TPO or PVC. EPDM, built up or modified bitumen roofing will not be acceptable. Type 316 stainless steel conductor boxes, gutters and downspouts with stainless steel flashing shall be required.

Asphalt or wood shingles and clay tile will not be acceptable roof materials.

The roofing system selected must comply with the insurer's FM ratings for wind, fire and storm warranty. Coordinate roofing system selected with mounting for future photovoltaic requirements.

4.3.24 Thermoplastic Polyolefin (TPO) Roofing

Provide a fully adhered roofing system with Flexible Walkways to all roof mounted elements requiring maintenance. Roofing system shall include substrate board, ASTM C 1177/C, glass mat and slip sheet.

- Basis of design product: Firestone UltraPly™ TPO SA with Secure Bond™ Technology or approved equal.
- Warranty Period: Twenty five (25) years from substantial completion.
- Provide metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories as required.

4.3.25 Polyvinyl-Chloride (PVC) Roofing

Provide a fully adhered roofing system with Flexible Walkways to all roof mounted elements requiring maintenance. Roofing system shall include substrate board, ASTM C 1177/C, glass mat and slip sheet. PVC Sheet: ASTM D 4434/D 4434M, Type II, Grade I, glass-fiber reinforced, felt backed, 60 mils thickness.

- Basis of design product: Sikaplan Adhered Energy Smart Roof membrane or approved equal.
- Warranty Period: Fifteen (15) years from substantial completion.

4.3.26 Standing Seam Metal Roof Panels

Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weather tight installation. Roof Panels shall be minimum 22 gauge.

- Minimum Finish requirements: Two coat fluoropolymer (AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions), - Kynar 500/ Hylar 5000.
- Basis of Design Product: AEP Span Klip Rib or Design Span HP.

4.3.27 Canopies and Protective Covers

Provide canopies or protective covers at all entrances to the building. All overhangs and coverings shall be designed to prevent bird nesting and shall have a minimum 1.5 percent slope. Structural performance of canopies shall be determined by a licensed professional engineer and shall withstand the effects of gravity loads and the additional live, roof, snow, seismic and wind loads and stresses as determined by the Design Team per applicable codes.

4.3.28 Skylights

Skylights must comply with Energy Code performance requirements and fenestration limitations as well as applicable building code provisions. Openings associated with mechanical equipment or roof access shall comply with all energy that apply to roof coverings. All roof openings shall be coordinated with the security/intrusion detection/ access control system design for the facility.

Laminated insulated glass skylights with white translucent interlayer are to be the basis of design. Thermally broken frames and insulated curbs, Preference is for use of clerestory daylighting strategies in lieu of horizontal glazing.

With the SFMTA approval and contingent upon the proposed design, use of factory pre-engineered, 4-inch thick aluminum skylight with translucent panel, thermal break core, 60 percent light transmission. Kalwall Standard Skylites or approved equal. Kalwall Corrosion-resistant finish with a 10 year finish warranty.

4.3.29 Roof Accessories

Pitch pockets and similar configured penetrations are prohibited. Use of sheet metal enclosures similar to NCRA TS-15 detail required.

Horizontal clear space of 24-inches shall be provided between all penetrations, curbs, parapets, similar transitions to allow for sufficient space to properly install, maintain and replace roofing systems. Manufacturer approved detail to be applied.

General Performance:

Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

- Roof Curbs and Equipment supports: Prefabricated aluminum, clear anodic finish, internally reinforced and factory insulated units with integrally formed roof deck-mounting flange at perimeter bottom. Provide curbs to minimum height of 8 inches per code.
- Roof Hatch: Prefabricated aluminum, clear anodic finish, thermally broken roof hatch with integrally formed roof deck-mounting flange at perimeter bottom. Note: a hatchway would be in addition to the required full stair roof access. Hardware: Spring operators, hold-open arm, stainless-steel spring latch with turn handles, stainless-steel butt- or pintle-type hinge system, and padlock hasps inside and outside. Intrusion detection shall be provided.
  - ✓ Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.
  - ✓ Provide roof-hatch manufacturer's standard ladder-assist post and attachments.

- ✓ Basis of Design product: Bilco thermally broken roof hatch.

4.3.30 Roof Access & Safety

Roof access shall be provided for all roof areas. Fixed metal ladders shall be provided where stair access is not available. Walk pads shall be installed on low slope roofs to allow access to all roof mounted equipment requiring servicing. Mounting equipment on steep slope roofs is discouraged due to the lack of easy access.

- Provide OSHA compliant fall protection systems for all roof areas. If any mechanical equipment is mounted on the roof it must meet the screening and maximum building height requirements allowed by the Bel-Red Ordinance.
- Provide roof to roof access (gangways) from roof areas that are not accessible by fire lane at ground level – coordinate any access requirements with the fire department.
- Changes in level on the roof exceeding 30-inches shall utilize a ladder or over the parapet ladder and platform complying with 29 CFR 1910.27. Ladders shall be constructed of stainless steel or aluminum. Rungs shall be provided an integral abraded finish. Galvanized or HPC painted ladders are not acceptable.

4.3.31 Exterior Joint Sealants

Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience. Joints shall be designed to meet the movement requirements for the installed conditions and shall present an aesthetic appearance that does not detract from the appearance of the building. The durability of the sealant shall also impact selection including aging characteristics and ultra-violet radiation, moisture, temperature, cyclic joint movement, movement during curing, and bio-degradation. Provide sealant backing or bond breaker as needed for specific applications.

Only sealants that have a current Validation Certificate from the SWRI (Sealant, Waterproofing & Restoration Institute) shall be utilized in the project. The Design Team shall confirm that all sealants selected meet the anticipated joint movement, are compatible with the materials they come in contact with and will adhere to the substrate(s) properly. Indicate joint locations, materials and spacing in construction document plans, elevations and details. Utilize sealants as follows:

- Latex (water based) sealants - not allowed on the exterior of the building.
- Acrylic (solvent-based) sealants – allowable for limited movement joints only as approved by the SFMTA.
- Butyl (solvent-based) – acceptable sealant for gutters, foundations and other non-exposed exterior joints.
- Silicone sealants – acceptable sealant for glass to metal framing systems and other porous and non-porous materials such as ceramic or stone panels.
- Polyurethane sealants – acceptable sealant for higher movement joints in concrete, masonry, metals, around window and door openings, expansion joints and other joints as approved by the sealant manufacturer.

Comply with joint sealant manufacturer's written instructions for products and applications indicated, unless more stringent requirements apply. Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

4.3.32 Expansion Control

Provide expansion control systems to accommodate building movement resulting from causes such as thermal change, seismic force or wind sway. Submit movement control diagrams addressing full structure. Submit calculations and rationale for joint locations, types and sizes. Expansion control elements shall match or be of a compatible color with the adjacent materials. Any exposed metal plates or covers shall be Type 316 stainless steel.

4.3.33 Exterior Signage

Exterior signage shall be designed and constructed per the SFMTA's corporate identify and brand standards. Refer to the Design Guidelines for notes on incorporating the SFMTA and Muni brands within the larger building architecture. The SFMTA shall sign off on all final signage designs. The SFMTA facility signage shall include:

- Customer Signage:
  - ✓ Main Facility Signage: provide at each vehicle entrance to the site.
- Exterior Door Signs: at all personnel and service doors.
- Operational Signage: Provide Operational signage as required per project. Coordinate with the SFMTA Operations.

Signage shall be designed to be architecturally compatible with the building and shall contribute to the overall character of the facility. Site signage within the facility shall follow the SFMTA standards and shall clearly identify circulation and safety elements as well as hazardous areas.

SECTION 4 - PERFORMANCE REQUIREMENTS

4.4 Interior Construction

Interior partitions in any maintenance and storage or shop areas shall be reinforced concrete masonry or concrete extending to underside of deck. Concrete or concrete masonry units at a minimum height of 8-feet 0-inches above finished floor with metal stud and impact and moisture resistant fiberglass faced gypsum wall board or AC plywood partitions above may be proposed for appropriate areas and will be considered on a case by case basis. Provide masonry control joints at a maximum of 25-feet 0-inches on center in continuous partitions, at maximum one half control joint spacing from both sides of corners, at changes in wall height or thickness, at building movement joints and at all openings.

Partitions in administrative, office, support type areas shall be constructed of metal studs with gypsum board. All interior partitions assemblies enclosing conference rooms, restrooms, offices and all rooms provided with access control shall extend to underside of deck.

Partitions enclosing custodial rooms, sprinkler valve rooms and restrooms shall have a minimum 6-inch high concrete curb. Wall finish shall cover curb in restrooms. Curb may be exposed in other rooms.

Refer to the Room Data Sheets for finishes and furnishings by room type. Joints and gaps at the base and top of the wall shall be sealed as well as joints at ceilings, corners or changes in material. Wall penetrations, including but not limited to ductwork, outlets or j-boxes, shall also be acoustically sealed in these rooms.

Submit for approval by the SFMTA product data, certificates and test reports verifying materials selected conform to performance standards listed in this document.

4.4.1 Interior Masonry

Concrete masonry units - Exterior Masonry, for concrete masonry unit descriptions and requirements. Outside corners and returns shall be bullnose block profile typical.

4.4.2 Gypsum Board

Performance Requirements:

- Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly according to ASTM E 119 by an independent testing agency.
- STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lb/sf.
- Attach all gypsum board to steel stud partitions in accordance with the Northwest Wall and Ceiling Bureau (NWCB) Specification Standards Manual and ASTM C840.
- Paper faced gypsum board can be used at non-maintenance areas not exposed to high levels of moisture, humidity, and direct contact with water.
- Acceptable Interior Gypsum Board: Gypsum Board (office and support areas), Type X: ASTM C 1396/C 1396M, 5/8-inch.
  - ✓ Basis of Design: DensArmor Plus Fireguard High Performance Interior Panel.
- Abuse-Resistant Gypsum Board (corridor/high traffic/circulation areas, locker rooms (when not protected by lockers)): ASTM C 1629/C 1629M, Type X, 5/8-inch.
  - ✓ Surface Abrasion: Meets or exceeds Level 1 requirements.
  - ✓ Surface Indentation: Meets or exceeds Level 1 requirements.
  - ✓ Single-Drop Soft-Body Impact: Meets or exceeds Level 1 requirements.
  - ✓ Basis of Design: DensArmor Plus Fireguard Abuse Resistant Interior Panel.
- Impact-Resistant Gypsum Board (shop , tool box storage rooms, materials handling, shipping areas to 12-feet by 0-inches above finish floor.): ASTM C 1629/C 1629M, Type X, 5/8-inch.
  - ✓ Basis of Design: DensArmor Plus Fireguard Impact Resistant Panel.
- Glass-Mat Interior Gypsum Board: ASTM C 1658/C 1658M. With fiberglass mat laminated to both sides. Specifically designed for interior use; Type X, 5/8-inch.
- Acceptable Tile Backing Panels:
  - ✓ Cementitious Backer Units: ANSI A118.9 and ASTM C 1288 or ASTM C 1325, with manufacturer's standard edges, 5/8-inch thick. Tile backer board not acceptable.
- Auxiliary Materials:
  - ✓ Sound-Attenuation Blankets (required at all interior metal stud and gypsum board partitions and as required by mandated STC ratings in Room Data Sheets, Section Four of the Facility Program): ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers

manufactured from glass, slag wool, or rock wool.
  - Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

✓ Acoustical Sealant: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

- Gypsum Board Finish Levels: Finish panels to levels according to ASTM C 840. Finish all exposed gypsum board to a level 5 equivalent finish (use of a high solids primer or skim coat), ready to receive paint regardless of final finish. All exposed gypsum board is to be primed and painted UNO. Finish shall be establish by use of mock-up. Concealed areas may be a level 3 finish and remain unpainted unless vapor control is needed. Level 4 equivalent finish can be used at non-maintenance areas.

4.4.3 Non Structural Metal Framing

Performance Requirements:

- Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- Comply with requirements in ASTM C 840 that apply to framing installation for gypsum board assemblies.
- Framing System:
  - ✓ Framing Members, General: Comply with ASTM C 754.
  - ✓ Steel Sheet Components: Comply with ASTM C 645 requirements for metal.
  - ✓ Protective Coating: ASTM A 653/A 653M, G60 hot-dip galvanized.
  - ✓ Studs and Runners: ASTM C 645.
  - ✓ Minimum Base-Metal Thickness: 0.0329-inch (22 gauge).
  - ✓ Slip-Type Head Joints: Where required by design conditions, provide one of the following:
    - Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
    - Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
    - Firestop Tracks: (where required in fire rated assemblies) Top runner manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
  - ✓ Provide blocking and Bracing behind all wall mounted items:
    - Flat Strap and Backing Plate: Steel sheet, minimum base-metal thickness: 0.0747 (14 gauge).
    - Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-metal thickness, with minimum 1/2-inch wide flanges.
  - ✓ Acceptable Furring:
    - Hat-Shaped, Rigid Furring Channels: ASTM C 645, minimum .0179 (25 gauge).
    - Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4-inch, wall attachment flange of 7/8-inch, minimum uncoated-metal thickness of 0.0179-inch, and depth required to fit insulation thickness indicated.
  - ✓ Suspension Systems:
    - Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch diameter wire, or double strand of 0.048-inch diameter wire.
    - Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16-inch in diameter.
    - Carrying Channels: Cold-rolled, commercial-steel sheet with a base-

metal thickness of 0.0538-inch and minimum 1/2-inch wide flanges.

- ✓ Furring Channels (Furring Members):
  - Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch wide flanges, 3/4-inch deep.
  - Steel Studs and Runners: ASTM C 645, minimum 0.0179-inch.
  - Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8-inch deep.
- ✓ Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
- ✓ Provide ceiling and wall access doors as required, complete with cylinder locks compatible with bi-lock cylinders. Manufacturer's standard factory applied baked enamel primer and shall be field finished to match adjacent materials.
  - Basis of Design: Milco, Cierra or approved equal.
  - Ceiling access shall be provided for each room and at each equipment location.

4.4.4 Operable Partitions

Performance Requirements:

- Seismic Performance: Operable panel partitions shall withstand the effects of earthquake motions determined according to ASCE/SEI 7 and as determined by the Design Team per applicable codes.
- Acoustical Performance: Provide operable panel partitions tested by a qualified testing agency for the following acoustical properties according to test methods indicated:
  - ✓ Sound-Transmission Requirements: Operable panel partition assembly tested for laboratory sound-transmission loss performance according to ASTM E 90, determined by ASTM E 413.
  - ✓ Provide minimum STC 52.
- Fire-Test-Response Characteristics: Provide panels with finishes complying with one of the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
  - ✓ Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
    - Flame-Spread Index: 25 or less.
    - Smoke-Developed Index: 450 or less.

4.5 - Interior Glazing

Interior glazing shall be installed in prefinished aluminum or painted hollow metal frames. Glazing shall be minimum 1/4-inch thick laminated, heat strengthened glass. Glazing between conditioned and unheated spaces shall be insulated.

4.5.1 - Interior Doors

Interior doors in administrative, office type areas shall be solid core wood except where hollow metal (steel) doors are required to meet the fire rating of the partition or where doors are anticipated to receive heavy use such as corridors or restrooms. Office doors shall have minimum 12-inch wide sidelights. Frames for wood doors and sidelights shall be hollow metal. Interior aluminum frame glazed storefront doors shall be used at vestibules in administrative/office type areas. Refer to PR Section 4.3.13 Storefront, for additional information concerning storefront.

Doors in maintenance, shop, support and storage areas shall be hollow metal (steel) as described below. Doors and frames opening into areas of excessive moisture or into a corrosive environment shall be fiberglass reinforced structural shapes designed and finished for these conditions. Refer to PR Section 5.4 for descriptions and requirements on FRP Doors. Doors to mechanical rooms shall be hollow metal (steel) with hollow metal frames identical to those in the shop areas.

Cross corridor doors which are anticipated to remain closed shall have half lites unless restricted to a smaller area by fire ratings. Doors opening into areas in which a person may be expected to be in the area of the door swing shall have half lites. Reduce quantity of half lite openings to corridor facing only and narrow vision lite at fire-rated door at egress stair.

All personnel doors on accessible routes shall comply with the Americans with Disabilities Act (ADA) Standards.

Where required, interior doors shall be coordinated with the security/intrusion detection/access control system design for the facility.

Locking and keying systems shall be fully compatible with the SFMTA standard system. Interior door hardware finish shall be stainless steel. Stainless steel kick plates shall be provided at all maintenance and shop doors as well as restroom and stairwell doors.

4.5.2 - Interior Door Requirements and Warranties

Regulatory Requirements:

- Fire-Rated Assemblies: Complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings and temperature-rise limits indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
- Smoke and Draft Control Assemblies: Provide an assembly with gaskets listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
- Fire-Rated, Borrowed-Lite Assemblies: Complying with NFPA 80 and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9.
- Wood Doors:
  - ✓ Solid core wood doors clad with wood veneer faces, WDMA premium grade. Veneer to be selected by the SFMTA; book matched. Veneer face assembly-Running match.
  - ✓ Basis of Design: Heritage Collection VT Industries or approved equal.
- Hollow Metal Doors:
  - ✓ Office and Administration areas:
    - Doors and Frames: Tack weld and filled.
    - Physical Performance: Level A according to SDI A250.4.
    - 18 gauge.
  - ✓ Shop, Support and Storage areas:
    - Doors and Frames: Tack weld and filled.
    - Physical Performance: Level A according to SDI A250.4.
    - Minimum 16 gauge.
    - Grouted frames will not be allowed.
  - ✓ Louvers: comply with SDI 111C.
- Finish: Doors and frames to be factory primed with galvalume primer compatible with top coats by the same manufacturer and then field painted with a high performance industrial coating as defined in Prescriptive Specification section 09 96 00, High-Performance Coatings.
- Glazing for Wood or Hollow Metal Doors: Provide ¼-inch thick minimum heat strengthened, laminated glass with a lifetime warranty.
- Hollow Metal Frames:
  - ✓ Minimum 16 gauge, face welded.
  - ✓ Jamb Anchors:
    - Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042-inch thick, with corrugated or perforated straps not less than 2-inches wide by 10-inches long; or wire anchors not less than 0.177-inch thick.
    - Stud-Wall Type: Designed to engauge stud, welded to back of frames; not less than 0.042-inch thick.
  - ✓ Floor Anchors: Formed from same material as frames, minimum thickness of 0.042-inch, and as follows:
    - Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
    - Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.
- Storefront doors:
  - ✓ Provide compatible non-insulated door from same manufacturer of storefront or curtainwall system selected. Refer to Section 4.3.13 Storefront for additional requirements.
- Overhead Coiling Doors
  - ✓ Insulated, motorized overhead coiling doors may be used at delivery and storage areas where applicable. Slats shall be stainless steel (minimum 22 gauge) or aluminum (minimum 18 gauge) and shall have a factory applied industrial quality finish. Doors must be provided with a lock with a master keyable cylinder that is compatible with the SFMTA standard system.
  - ✓ Warranty: minimum two (2) years from substantial completion.
  - ✓ Design Criteria:
    - Design Wind Load (where applicable): As determined by the Design Team per the applicable codes.
    - Deflection Limits (where applicable): Design overhead coiling doors to withstand design wind load without evidencing permanent deformation or disengagement of door components.
    - Seismic Performance: Overhead coiling doors shall withstand the effects of earthquake motions determined

according to ASCE/SEI 7 and the appropriate component importance factor as determined by the Design Team per the applicable codes.

- Operation Cycles: Door components and operators capable of operating for not less than 10,000 operation cycles (one cycle - door is opened from the closed position to the fully open position and returned to the closed position).
- Air infiltration (applicable between conditioned and heated only spaces): maximum rate of 0.08 CFM/sf when tested according to ASTM E 283 or DAMSA 105.
- Curtain R-value (applicable between conditioned and heated only spaces):as required by Energy Code, minimum R-7.

✓ Operator:
- Electric, Standard duty usage classification; rated for a maximum of 20 cycles per hour.
- Safety Features: sensor edge and photoelectric eye, emergency manual chain hoist assembly, provide an integral motor mounted interlock system to prevent damage to door and operator.
- Controls: surface mounted manufacturer standard button control interior, key access exterior.

✓ Finish: factory applied powder coat.
✓ Acceptable Product: (Insulated) Stormtite 625 by Overhead Door or approved equal; (Non-Insulated) Model 610 by Overhead Door or approved equal.

- Access Doors: Provide ceiling and wall access doors where required for service or maintenance, complete with cylinder locks compatible with the SFMTA standard lock system. Provide fire rated access doors and frames complying with NFPA 80 that are listed and labeled by a qualified testing agency for fire protection ratings required, according to NFPA 252 or UL 10B. All doors to have manufacturer's standard factory applied powder coated primer and field painted to match adjacent materials.
- Special Door Requirements:
  ✓ Doors providing access to the Telecommunication Rooms shall have replaceable gaskets, seals and sweeps at the jambs, head and sill to prevent the entry of dirt and debris.

4.5.3 - Interior Door Hardware

All door hardware sets and to be reviewed and approved by the SFMTA. Default hardware material shall be stainless steel. Alternate materials may be utilized with the SFMTA approval. Doors in fire-rated openings shall have hardware that is certified by Underwriters Laboratories (UL) or Warnock Hersey (WH).

At a minimum, provide the following standard sets of hardware for interior doors (single doors listed – adjust for pairs of doors accordingly):

- Storefront doors (vestibule): Offset Pivots (3 minimum), closer, push/pull set, stop.
- Personnel door (office area): Hinges (3 minimum), mortise lockset (secure) or mortise latchset (non-secure), stop, silencers.
- Hollow metal door (shop and office area perimeter): Hinges (3 minimum), mortise lockset (secure) or Mortise latchset (non-secure), closer, stop, kick plate or armor plate (materials handling), silencers, exit device (as required by code), entry/exit device (as applies), the SFMTA standard card reader access control system and/or intrusion detection alarm (as applies).
- Hollow metal Stair/Exit Door: Hinges (3 minimum), exit device, closer, stop, kick plate, silencers.
- Restrooms, Locker rooms: Hinges (3 minimum), push/pull, closer, stop, kick plate, mop plate, silencers.
- Custodial Rooms (Janitor Closet): Hinges (3 minimum), mortise lockset, stop, kick plate, mop plate, silencers

4.5.4 - Interior Joint Sealants and Firestopping

Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience. Joints shall be designed to meet the movement requirements for the installed conditions and shall present an aesthetic appearance that does not detract from the appearance of the building. The durability of the sealant shall also impact selection including aging characteristics, moisture, temperature, cyclic joint movement, movement during curing, and bio-degradation. Provide sealant backing or bond breaker as needed for specific applications. Provide mildew resistant sealants in wet areas.

Only sealants that have a current Validation Certificate from the SWRI (Sealant, Waterproofing & Restoration Institute) shall be utilized in the project. The Design Team shall confirm that all sealants selected meet the anticipated joint movement, are compatible

with the materials they come in contact with and will adhere to the substrate(s) properly. Indicate joint locations, materials and spacing in construction document plans, elevations and details. Utilize sealants as follows:

- Latex (water based) sealants – acceptable for acoustic joints and firestopping systems as tested by UL Classified.
- Acrylic (solvent-based) sealants – acceptable for acoustic joints and firestopping systems as tested by UL Classified.
- Silicone sealants – acceptable sealant for plumbing fixtures, tile and stone applications and other porous and non-porous materials such as ceramic or stone panels.
- Polyurethane sealants – acceptable sealant for higher movement joints in concrete, masonry, metals, around window and door openings, expansion joints and other joints as approved by the sealant manufacturer.

Comply with joint sealant manufacturer's written instructions for products and applications indicated, unless more stringent requirements apply. Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

- Provide UL Classified firestopping systems at all penetrations and joints in or between Fire-Resistive Rated Construction complying with ASTM E 1966 or UL 2079.
- Provide fire-resistive joint systems in smoke barriers with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg.
- Provide flame-spread and smoke-developed indexes for exposed joint firestopping systems of less than 25 and 450, respectively, as determined per ASTM E 84.
- Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

4.5.5 Expansion Control

Provide expansion control systems to accommodate building movement resulting from causes such as thermal change, seismic force or wind sway. Submit movement control diagrams addressing full structure. Submit calculations and rationale for joint locations, types and sizes. Expansion control elements shall match or be of a compatible color with the adjacent materials. Any exposed metal plates or covers shall be Type 316 stainless steel.

4.6 Interior Stairs

Communicating stairs in office and administration areas that are expected to be used on a daily basis shall be constructed of painted steel stringers with precast tread/riser units and landings or be fully pre-cast stair runs. The appearance of stairs in these areas shall be architectural grade finishes with AESS where exposed steel is present. Steel stairs used solely for egress and in shop and maintenance bay areas shall have precast tread/riser units or concrete filled metal pan treads with closed steel risers. All stair treads shall have a non-slip surface with a replaceable nosing consisting of an inset aluminum extrusion with abrasive anti-slip safety material. Open grating stairs will not be allowed. Epoxy connections for precast concrete treads will not be allowed.

Provide a minimum of one stair with direct access from the shop areas on the ground floor to the roof. This stair should have a fully enclosed interior landing and be protected by an enclosed penthouse with a hollow metal door. Daylight should be provided within this stairwell to the extent allowable by the design. Exterior shall be provided a landing level with the door threshold. Landing shall be minimum of 5-feet, 0-inches deep and full width of stairwell with a minimum overhead canopy of the same size. Provide lighting, recessed weatherproof receptacle and hose bib at this location. All exterior doors shall be coordinated with the security/intrusion detection/access control system design for the facility.

Provide factory assembled stair units, fabricated by a firm or shop experienced and skilled in custom fabrication and construction of metal stairs and railings (as applies).

- Treads and risers for steel pan stairs: minimum 14 gauge steel.
- Landings for steel pan stairs: minimum 12 gauge.
- Stringers: steel channels or tubes, size and gauge to suite span and stair width.

4.7 Interior Wall Finishes

Wall finishes shall be selected on the basis of durability and low maintenance and shall comply with sustainability requirements for low-emitting materials. Finishes shall be aesthetically pleasing and appropriate to the building's function.

SECTION 4 - PERFORMANCE REQUIREMENTS

4.7.1 Wall Finish Requirements

- Paint:
  - ✓ Paint systems shall be designed for application on the partition or wall substrate and shall be designated by MPI (Master Painters Institute) numbers. All systems shall meet or exceed MPI Premium Grade.
- Tile (excluding shower stalls):
  - ✓ Full wall height. Minimum of two colors to provide field and accent.
  - ✓ Install in compliance with the latest edition of the Tile Council of North America (TCNA) recommendations. For metal stud walls with cement board substrate utilize method W241. For masonry or concrete walls utilize method W211. Provide waterproof membrane at all wet walls up to 4 feet high.
  - ✓ Glazed porcelain (ANSI 137.1), large format (Minimum 12-inches by 12-inches), 1/4-inch thick minimum.
  - ✓ Provide curved wall/floor cove and inside corners, bullnose, quarter round and any other special shapes required for smooth transitions and ease of cleaning. Color and type shall be chosen from Price Group 2 or greater and approved by the SFMTA.
  - ✓ Grout: Low VOC, cementitious, and meet ANSI 118.6.
- Tile (Shower stalls):
  - ✓ Full wall height. Minimum of two colors to provide field and accent.
  - ✓ Install in compliance with the latest edition of the Tile Council of North America (TCNA) recommendations. For metal stud walls with cement board substrate and mortar bed floor tile utilize method B415. For masonry or concrete walls utilize method B422. Provide a waterproof membrane (A108.13) typical. Complete waterproofing is required including treatment at termination points.
  - ✓ Glazed porcelain (ANSI 137.1), large format (Minimum 12-inches by 12-inches), 1/4-inch thick, price Group 2 or greater.
  - ✓ Trim units: bullnose at external corners.
  - ✓ Grout: low VOC, to inhibit the growth of mold and mildew, and meet ANSI A118.3.
  - ✓ Provide Laticrete “Spectra-Loc” or approved equal.
- Wall Protection:
  - ✓ Provide minimum 16 gauge type 316 stainless steel corner guards with minimum 3-inch wings, 4-fee 0-inches high (minimum) at all outside corners. Mounted from top of rubber base, radius corners, beveled pre-drilled holes. Attach with SS screws.
- Stainless Steel Wall Panels: Provide minimum 18 gauge Type 316 with No. 4 satin finish in corridors only. Maximize panel size for installation location. Screw mount panels unless otherwise directed.

4.7.2 Steel Finishes

Exposed structural steel, steel handrails, exposed piping and conduit and associated supports shall be painted construction and finishing. Steel stairs and handrails shall be red primed only.

4.7.3 Floor Finishes

Floor finishes shall be selected on the basis of durability, low maintenance and shall be easily replaceable. They shall comply with sustainability requirements for low-emitting materials. Floor finishes are listed by room on the Room Data Sheets found in Section Five. Finishes selected shall require. Provide stainless steel transitions at all changes in flooring material. Provide maintenance materials for each floor type selected: five (5) full unopened boxes.

4.7.4 Floor Finish Requirements

Natural Concrete:

- Integrally Colored Ground and Polished Concrete:
  - ✓ Concrete to be mixed, placed and finished in compliance with “CPAA Recommendations for the Design, Specification, and Placement of Concrete Floor Slabs” from the Concrete Polishing Association of America.
- Color, aggregate size and polish level as selected and approved by the SFMTA.
- Mockup: First-in-place and finish a 10-feet by 10-feet area in compliance with “CPAA Recommendations for the Design, Specification, and Placement of Concrete Floor Slabs”.
- Installer shall have 5 years minimum experience with work of similar scope and quality and shall be a CPAA certified applicator.
- Acceptable Manufacturer: L.M. Scofield Company. Provide a complete system from one manufacturer including but not limited to colored admixture, curing and sealing

compound, chemical hardener/densifier and curing compound for polished concrete.

Walk Off Mats:

- Provide walk off mats at all entrances and at transitions between the shop or storage areas and office/administration areas. Textured patterned loop, 100 percent type 6.6 nylon. Provide 'Recourse II' by Mannington Commercial or approved equal.
- Carpet Tile: Must comply with the specification developed by the San Francisco Department of the Environment, dated June 8, 2018.
- Resilient Flooring:
  - ✓ Rubber Tile: Performance Requirements:
    - ○ Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
    - ○ Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
    - ○ Minimum 0.100-inch (2.54 mm) thick. Seams shall be chemically welded. Rubber tile selected shall be certified compliant with the "FloorScore" standard. Flooring adhesives shall be low VOC and shall meet the Carpet and Rug Institute Standard and "Green Label" program.
    - ○ Provide: Endura Simply Smooth Flexibles by Burke or approved equal.
    - ○ Rubber tile at Fitness area: Resilient Ecofitness Multifunctional Athletic Robber Flooring by Burke or approved equal.
- Linoleum Tile:
  - ✓ Minimum 2.5 mm (0.10-inch) thick, manufacturer standard size (minimum 10-inches by 10-inches).
  - ✓ Type II with polyester backing.
  - ✓ Heat welded seams.
  - ✓ Warranty period: minimum five (5) years from date of Substantial Completion.
  - ✓ Basis of Design: Modular Tile Linoleum Tile by Marmoleum or approved equal.
- Resilient Base:
  - ✓ ASTM F 1861 Type TS Rubber, Thermoset, Group I, minimum 4-inches high, 0.125-inch thick Floor Score Certified.
- Porcelain Tile :
  - ✓ Interior floor tile to be unglazed through body porcelain, minimum 1/4-inch thick, price Group 2 or greater. Provide all trim units: cove base, bullnose at external and internal corners, etc.
  - ✓ Install in compliance with the latest edition of the TCNA recommendations. Utilize method F114 with a cleavage membrane.
  - ✓ Tiles shall comply with ANSI A137.1 and have color extending uniformly through the body of the tile and provide a 0.5 percent maximum water absorption in accordance with ASTM C737.
  - ✓ Class Three (3) Commercial Medium to Heavy Traffic classification as rated by the manufacturer when tested in accordance with ASTM C1027-99 for visible abrasion resistance as related to foot traffic.
  - ✓ MOH Scale Rating of 7 or greater.
  - ✓ Slope tile floors to drain.
  - ✓ Provide expansion, control and isolation joints as needed to accommodate movement and maintain tile assembly integrity. Follow TCNA EJ171 Movement Joint Guidelines.
  - ✓ Provide waterproof membrane in shower areas in accordance with ANSI A118.10.
  - ✓ Wet Dynamic Coefficient of Friction (DCOF): For tile installed on horizontal surfaces, provide products with the following values as determined by testing identical products per ANSI A137.1 Section 9.6 DCOF: minimum 0.60.
  - ✓ Grout: low VOC, to inhibit the growth of mold and mildew, and meet ANSI A118.3.
  - ✓ Provide Laticrete "Spectra-Loc" or approved equal.
- Tile and installation requirements for Shower stalls:
  - ✓ Install in compliance with the latest edition of the TCNA recommendations. For tile shower receptor utilize method B415 with a waterproof membrane. Terrazzo tile receptors may be utilized with the SFMTA approval. Complete waterproofing is required including treatment at termination points.
  - ✓ Tiles shall comply with ANSI A137.1 and have color extending uniformly through the body of the tile and provide a 0.5 percent maximum water absorption in accordance with ASTM C737.
  - ✓ Class Three (3) Commercial Medium to Heavy Traffic classification as rated by the manufacturer when tested in accordance with ASTM C1027-99 for visible abrasion resistance as related to foot traffic.
  - ✓ MOH Scale Rating of 7 or greater.

- ✓ Slope tile floors to drain.
- ✓ ADA compliant shower stalls shall slope to a trench drain at the back of the stall.
- ✓ Provide integral soap dish.
- ✓ Provide expansion, control and isolation joints as needed to accommodate movement and maintain tile assembly integrity. Follow TCNA EJ171 Movement Joint Guidelines.
- ✓ Provide waterproof membrane in accordance with ANSI A118.10.
- ✓ DCOF: For tile installed on horizontal surfaces, provide products with the following values as determined by testing identical products per ANSI A137.1 Section 9.6 DCOF: Minimum 0.60.

4.7.5 Ceiling Finishes

Durability and ease of maintenance and access shall drive the selection of ceiling finishes. Sustainability requirements for low-emitting materials and environmental product disclosure shall be followed. Ceilings with recycled content are preferred, but must meet performance criteria listed below. Acoustic properties of materials shall be considered and finishes shall be selected that reduce reverberation and noise to the greatest extent possible.

Coordination shall be required with security and communications systems and ceilings shall be designed to allow or prevent access to critical elements as needed by those systems. Access to mechanical, plumbing and electrical equipment requiring service or maintenance shall be designed into the selected ceiling systems. Ceiling access shall be provided for each room and at each equipment location.

Ceilings in maintenance bays, shops and associated storage, and the truck wash area shall be open to the deck.

Exposed insulation will not be allowed except for under-slab insulation required between non-conditioned and conditioned spaces.

4.7.6 Acoustical Ceiling

- Tile size: 24-inches by 24-inches by (min) 3/4-inch
  - ✓ Armstrong Ultima Square or Beveled Tegular or approved equal.
- Suspension system:
  - ✓ Direct-Hung, Double-Web Suspension System: Main and cross runners roll formed from and capped with cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 (Z90) coating designation.
  - ✓ Prelude XL, Exposed Tee or approved equal.

4.7.7 Gypsum Board Ceilings

Performance Requirements:

- Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly according to ASTM E 119 by an independent testing agency.
- Attach all gypsum board to supports in accordance with the Northwest Wall and Ceiling Bureau (NWCB) Specification Standards Manual and ASTM C840.
- L4 finish with paper faced gypsum board can be used at Levels 2 and 3 interior offices.
- Gypsum Board Type X: ASTM C 1396/C 1396M, 5/8-inch.
  - ✓ Basis of Design: DensArmor Plus Fireguard High Performance Interior Panel.

4.7.8 Interior Signage

Provide room identification signage for all rooms and spaces within the facility per the SFMTA Guidelines. Signage shall comply with applicable provisions of the ADA guidelines and include room numbers and names. Office spaces and other spaces as directed by the SFMTA shall have interchangeable inserts. Signage in shop areas to be made of highly durable material and shall be mechanically attached to the wall with non-corrosive fasteners compatible with the material joined (adhesive attachment will be unacceptable). Room identification signage shall be consistent in appearance throughout the building. Wayfinding signage shall be provided to facilitate access to all areas of the building.

Furnish and install all signage, required mounting and associated structural supports or backing for signage. Signage designs and locations shall be coordinated, reviewed and approved by the SFMTA prior to fabrication and installation. An approved sign location plan is required prior to the 100 percent review. The SFMTA interior signage shall include:

- Code mandated signage (including hazardous areas, safety, egress and accessibility).
- Room signage: for all rooms and spaces within the facility.
- Wayfinding Signage: clearly identify circulation routes to all areas of the facility.
- Operational signage: as directed by the SFMTA Operations.

Signage shall be designed to be architecturally compatible with the building and shall contribute to the overall character of the facility.

4.7.9 Specialties

- Visual Display Units: Provide visual display units in conference rooms, training rooms, and lunch/break rooms. Provide marker boards and tack boards or combination units containing both marker boards and tack boards. Provide marker boards with chalk trays with lifetime surface warranty.
- Storage Shelving: Provide storage shelving as required in equipment schedule and specified here in.
- Toilet and Bath Accessories: Provide toilet and bath accessories fabricated from stainless steel. Provide paper towel dispensers, waste receptacles, toilet tissue dispensers, soap dispensers, grab bars, sanitary napkin dispensers and disposal units, shower curtains, hair dryers, mirrors, and clothes hooks, as required for convenient and efficient use of toilet and bath facilities. Provide mop sink and mop plus broom holder with shelf in custodial closets.
- Projection Screens: Provide ceiling recess mounted electrically operated projection screen in the Training Room. Screen material suitable for video projector, minimum screen size 5-feet by 7-feet.

4.7.10 Millwork

Refer to Room Data Sheets for millwork locations and general requirements. Provide AWI (Architectural Woodwork Institute) custom grade millwork, concealed hinges, and adjustable shelf standards. All hardware shall be stainless steel.

Exposed millwork surfaces shall be ANSI/ NEMA LD3 high pressure plastic laminate with plastic laminate covered edges. Melamine interior finish will not be acceptable.

Horizontal surfaces other than countertops, the vertical surfaces, and the edges shall be Grade HGS.

Semi-Exposed Surfaces excluding drawer bodies shall be Grade VGS. The drawer sides and backs shall be solid hardwood lumber. The drawer bottom shall be constructed with hardwood plywood.

Countertop (all locations except Dispatch) shall be constructed with solid surface with integral backsplash. Dispatch countertop shall be minimum 16 gauge in thickness, Type 304 stainless steel, non-directional matte finish and with the eased edge.

Miscellaneous millwork included shelving in the maintenance library, media, and storage rooms shall be coordinated with SFMTA. Shelving shall be plastic laminate cladded and supported by standards and painted steel brackets for the expected loading.

For bonding laminate to core, PVA adhesive for cold press applications shall be machine applied as a consistent, rigid glue line. Use adhesives that comply with VOC content limits according to EPA Method 24, 40- CFR-59, Subpart D, wood glues with VOC content less than 30 g/L. VOC contents of the adhesive shall be 70 g/L or less. Added urea-formaldehyde in materials or fabrication is not allowed in assemblies.

4.8 Conveying - Elevators

- Personnel elevators: Provide elevator by Fujitec, KONE, Schindler, Thyssen, Cantonor approved equal. Passenger elevator features:
  - ✓ Capacity: 3,000 pounds.
  - ✓ Speed: per NPE and the SFMTA
  - ✓ Car Interior and Hall Doors and Frames: Stainless steel, minimum 14 gauge. Sound deaden doors and frames.
  - ✓ Emergency Return Unit: A battery powered lowering unit shall be provided to automatically return the elevator to its lowest landing at normal speed in a power failure and allow all passengers to exit safely.
  - ✓ Floor Finish: Per NPE and the SFMTA
  - ✓ System Startup: NPE to obtain and pay for permit, license, and inspection fee necessary to complete the installation.
  - ✓ Power Characteristics: 480 V, 3 phase, 60 hertz.
  - ✓ Minimum Clear Inside Car: minimum 6-feet 8-inches wide by 4-feet 9-inches deep by 8-feet high clear.
  - ✓ NPE shall submit 3-inch by 12-inch samples of actual finished material for review of color, pattern, and texture of exposed finishes.
- Freight elevators: Provide elevator by ThyssenKrupp, Otis, Schindler or Kone. Freight elevators shall meet all codes referenced therein. Selection of the elevator type (electric or hydraulic) shall be made based on the required performance and shall be subject to review and approval by the SFMTA.
  - ✓ Access to the freight elevator shall be provided on all bus yard component levels.
  - ✓ Loading and Capacity: Class C-1, minimum loading capacity of 10,000 pounds, designed to transport a loaded industrial truck with the maximum combined weight of industrial truck and load not to exceed 10,000 lbs.
  - ✓ Speed: 100 feet per minute (minimum).

- ✓ Clear Inside Dimensions: minimum 8-feet wide by 13-feet 6-inches deep with minimum height to accommodate an electric forklift.
- ✓ Operation: Simplex.
- ✓ Emergency Return Unit: A battery powered lowering unit shall be provided to automatically return the elevator to its lowest landing at normal speed in a power failure and allow all passengers to exit safely.
- ✓ Car Interior, Hall Doors, and Frames: stainless steel panels, minimum 14 gauge with No. 4 finish, flooring to be minimum 3/16 inch steel checker plate.
- ✓ Additional features: wire mesh car gate, stainless steel bumpers, buttons for cab protection pads.
- ✓ Provide an associated machine room as required by elevator manufacturer.
- ✓ System Startup: NPE to obtain and pay for permit, license, and inspection fee necessary to complete the installation.
- ✓ Power Characteristics: 480 V, 3 phase, 60 hertz.

- Major elevator components, including driving machines or pump and tank units and plunger-cylinder assemblies (as applicable), controllers, signal fixtures, door operators, car frames, cars, and entrances, shall be manufactured by a single manufacturer. Elevators shall be installed by the elevator manufacturer or an authorized representative who is trained and approved by the manufacturer.
- Elevators shall be fully accessible to individuals with disabilities, meeting all requirements of the ADA Guidelines.
- A minimum 2 year warranty from the date of Acceptance shall be provided in which Manufacturer agrees to repair, restore or replace elevator work that fails in materials or workmanship within the specified period. Failures include but are not limited to, operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
- Traveler Cable - Systems to elevator shall be provided via a traveler cable meeting the following requirements:
  - ✓ Terminate in a communications compartment/access panel on the rear wall accessible inside the car to hold communications equipment.
  - ✓ Carry compartment power for router and devices.
  - ✓ Wire-way from compartment to devices.
  - ✓ Router inside the communications compartment.
  - ✓ Router consolidates CCTV, ACS, phone if IP Phone.
  - ✓ Traveler cable to include Plastic Optic Fiber (POF) cable for IP communications to the Router. Use a POF fiber bundle in a sheath rated for Continuous-Bending. POF shall be rated for at least 5,000,000 (five million) Continuous-Bending cycles. POF fiber may be multi-mode or single mode. Terminate 1 pair of POF at elevator distribution cabinet and elevator cab systems. Leave remaining pairs unterminated in elevator and in elevator machine room.
  - ✓ Provide four pairs of spare communication wires in addition to those required to connect specified items. Tag the spares in the machine room.

4.9 Plumbing

General:

The NPE shall design, permit, and construct all plumbing systems. All work shall be in accordance with the California Building and Plumbing Codes with City and County of San Francisco amendments, local codes, and any criteria listed in this document.

The NPE shall be responsible for verifying achievement of goals at each progress design deliverable and at permit.

All water and gas piping penetrations through concrete or masonry shall have a metallic pipe sleeve. Sleeves at floor penetrations shall extend at least 12 inches above slab. Seal all wall and floor penetrations.

Provide pipe labels for all piping every 50 feet and change of direction indicating size, content, and flow of direction.

Seismic-restraint systems shall comply with California Building Code with local amendment requirements. Refer to structural for wind- and seismic-restraint loading requirements.

4.9.1 Plumbing Piping

Potable Domestic Water:

Potable domestic water mains and new supply lines shall be installed at least 4-feet horizontally from, and one-foot vertically

above a parallel pipeline conveying recycled water. The water main shall not be in the bus driveways.

Domestic water piping 3-inches and larger below the slab shall be ductile iron and piping 2-1/2-inches and less shall be ASTM B88 Type K soft copper with no joints or silver brazed joints. Above floor piping shall be ASTM B88 Type L hard copper with lead-free soldered or pressure-sealed joints. Push-on and drilled joints are prohibited. All buried domestic water pipe below slab shall be protected with 20 mil polyethylene wrap and tape and pipe sleeve at slab penetration. Hydrostatically test water piping to 100 PSI or 150 percent of operating pressure. Maintain pressure for not less than four hours.

Potable domestic water service must comply with the CCSF Plumbing Code and Health Code. Provide with a strainer and lead-free reduced pressure backflow preventer with secondary, utility grade remote reading water meter. The pulse meter shall be connected to the building automation system (BAS). The supply line to each item of equipment or fixture shall be equipped with a shutoff valve to enable isolation of the item for repair and maintenance without interfering with the operation of other equipment or fixtures. Supply piping to reels, wall hydrants and equipment shall be anchored to prevent movement.

Domestic hot water piping shall be insulated.

Domestic water shall be sized to provide a minimum of 25 PSI at flush valves and 15 PSI at other fixtures. Sizing shall comply with the requirements of the California Plumbing code. Velocities with the main and branch piping shall not exceed 6 fps.

Domestic water valves 4-inches and larger shall be OS&Y gate valves type with cast iron body and bronze mounted trim type MSS SP-70 rated for a minimum of 175 PSI. Valves 3-inches and less shall be bronze ball type MSS SP-110 rated for a minimum of 400 PSI. All potable domestic water valves shall be lead free.

Water sub metering shall be installed to monitor consumption of water uses including, but not limited to, individual monitoring of each vehicle or equipment wash area, shop area, irrigation system and all exterior hose bibs. Each sub meter shall be connected to the BAS.

4.9.2 Recycled Water

Recycled water piping shall be purple PVC or equivalent with SFPUC's City Distribution Division sign off, prior to installation.

The potable water line may be used to feed the recycled water lines(s) until such time that recycled water becomes available. When recycled water becomes available, the cross-connection will be broken by the SFPUC, and the potable and recycled water lines will be totally separated. Before recycled water is delivered to the property, cross-connection and backflow testing will take place to assure separation.

Connect water closet and urinal flushing and wash water system to metered recycled water system.Provide additional pulse meters for the boiler make-up water and wash water systems make-up water. Any irrigation systems shall have a dedicated recycled water tap with a separate meter. All meters shall connect to BAS.

4.9.3 Sanitary and Oily Waste and Vent

Sanitary/oily waste and vent piping shall be no-hub cast iron pipe and fittings.

4.9.4 Storm Drain

Storm drain piping that is not visible from the exterior of the building shall be no-hub cast iron pipe and fittings. Exterior storm piping shall be stainless steel, unless otherwise authorized by the SFMTA.

4.9.5 Waste Water Force Main

Waste water force main piping shall be ASTM B88 Type K hard copper with silver brazed joints. Above floor piping shall be ASTM B88 Type L hard copper with lead-free soldered joints.

4.9.6 Plumbing Fixtures

- Water closets shall be wall mounted with flush valve and elongated bowl and chair carrier. Water closet and flush valve shall be HET at 1.28 max GPF with a MaP rating of 1000 as tested by Veritec Consulting, Inc. Flush valve shall be exposed, hydraulically powered, electronic sensor operated type with additional manual flush. Water closets and flush valves shall be suitable for use with recycled water.
- Urinals will be wall mounted flush valve type with carrier. Urinal and flush valve will be HEU at 0.125 max GPF. Flush valve will be exposed, hydraulically powered, electronic sensor operated type with additional manual flush. Urinals and flush valves shall be suitable for use with recycled water.
- Lavatory will be white vitreous china, under counter mounted or wall mounted with chair carrier. Faucets will be hydraulically powered, electronic sensor operated, heavy-duty cast brass institutional grade with maximum flow

rate of 0.5 max GPM. Lavatory faucets shall comply with ASSE 1070.

- Sink in Break Rooms will be double compartment, under counter mounted, 18-gauge stainless steel. Faucets will be manual operated, heavy-duty cast brass institutional grade with maximum flow rate of 1.8 max GPM. Sinks shall be provided with garbage disposer.
- Sink in Coffee Bars will be single compartment, under counter mounted, 18-gauge stainless steel. Faucets will be manual operated, heavy-duty cast brass institutional grade with maximum flow rate of 1.8 max GPM.
- Showers will be provided with heavy-duty pressure balancing type mixing valve. Shower heads will be 1.8 max GPM flow. Hand held shower heads for the handicapped will be 1.8 max GPM flow.
- Electric water coolers will be dual height and constructed of stainless steel lead-free and with an integral filter and bottle filler.
- Wash fountains will be multi-station and constructed of stainless steel or precast terrazzo. Each station will be 0.5 GPM flow.
- Janitor's mop sink will be floor type constructed of precast terrazzo. Faucet will be manual operated heavy-duty cast brass institutional grade, wall mounted with support bracket, vacuum breaker with hose end spout with maximum flow rate of 2.2 GPM.
- Combination emergency/shower eyewashes shall be exposed type with floor flange, galvanized steel piping plastic shower head actuated by a stay open ball valve with rigid pull rod and handle, eyewash with large stainless steel bowl and two soft stream heads actuated by stay open ball valve with push flag. Unit will be provided with manufacturer's recommended thermostatic mixing valve to provide tepid (60 degrees to 100 degrees F) water in accordance with ANSI Z358.1 and local audio/visual alarm tied into the BAS. Minimum size for thermostatic mixing valve will be 44 GPM with a maximum pressure drop of 20 PSI. Pipe sizes will be 1-1/4-inch water inlet and 1-1/4-inch drain. Combination emergency shower/eyewashes shall be located throughout the maintenance areas in accordance with CalOSHA eyewash requirements. All emergency showers/ eyewashes shall be floor drain.
- Emergency eyewashes shall be exposed type with floor flange, galvanized steel piping with large stainless steel bowl and two soft stream heads actuated by stay open ball valve with push flag. Unit will be provided with manufacturer's recommended thermostatic mixing valve to provide tepid (60 degrees to 90 degrees F) water in accordance with ANSI Z358.1 and local audio/visual alarm tied into the BAS. Minimum size for thermostatic mixing valve will be 5 GPM with a maximum pressure drop of 20 PSI. Pipe sizes will be 3/4-inch water inlet and 1-1/4-inch drain. Emergency eyewashes shall be located on the mezzanines. All emergency eye washes shall be hard plumbed and with floor drain.
- Exposed plumbing fixture trim shall be chrome plated.
- Trap primers shall be ASSE 1018 supply-type, trap-seal primer. Trap seals shall be ASSE 1072 certified waterless in-line drain trap seals at each drain outlet.
- Water hammer arrestors shall be properly applied to the domestic hot and cold water systems for all plumbing fixtures in accordance with ASSE 1010 and PDI-WH 201. Water hammer arrestors shall be all stainless steel when installed in non-accessible locations. Provide water hammer arrestors at all solenoid valves.
- Handicapped plumbing fixtures shall be provided in accordance with ADA.

4.9.7 Plumbing Specialties

- Roof drains with overflow roof drains and roof clamps shall be provided. Roof drain system shall be sized for 1.5-inches of rainfall per hour. Storm water piping shall be no-hub cast iron above grade and HDPE below grade.
- Floor drains shall be provided in Restrooms, Showers, Changing areas, Custodial Rooms (Janitors Closets). Floor sinks shall be provided at each emergency showers/ eyewashes, emergency eyewashes and Mechanical Rooms adjacent to water heaters, boilers, air compressors, HVAC units, and pumps. Reduced pressure backflow preventers shall be provided with a floor sink drain. Floor sinks for condensing domestic water heaters and boilers shall have a cast iron body and 13-inch square slotted heavy duty grate with acid resisting epoxy coated interior and top, with anti-splash interior dome strainer.
- Floor drain grates and frames in Restrooms, Showers and Custodial Rooms (Janitors Closets) shall be light duty with nickel bronze or stainless steel 6-inches grates. Floor sinks at mechanical rooms, water heaters, boilers and emergency showers/eyewashes and emergency eyewashes shall have a

cast iron body and 13-inch square slotted heavy duty grate with acid resisting epoxy coated interior and top, with anti-splash interior dome strainer. Full grate configuration and emergency showers/eyewashes and emergency eyewashes. Grate configuration for mechanical rooms shall be suitable for installation requirements.

- Floor drains in shop areas subject to wheel traffic shall be heavy-duty with 8-inch nickel bronze or stainless steel tractor grate.
- Trench drains shall be provided in lower level work areas, wash areas and overhead door openings. Grates shall be Load Class D / H-20 rated for extra heavy duty.
- Floor drains and floor sinks shall be provided with trap protection device. Trench drains shall have sediment baskets installed upstream of traps.
- Elevator pits shall be provided with sump pits and be provided with a means of evacuating drainage. Per CAL/OSHA Title 8, chapter 4, sub-chapter 6, section 3120.6, pumps are not permitted to be physically located in the elevator sump pits. Drainage from hydraulic elevator pits shall discharge through an oil-water separator before discharging into the sanitary system. Provide a high level alarm for sump pits.
- Exterior freeze proof wall hydrants shall be box type and provided around the perimeter of each building at each man door. Non-freeze interior hose bibs shall be provided around the perimeter of the interior shop areas at 150-feet or less intervals, in lower level work areas, Restrooms and Mechanical Rooms.
- Compressed air drops shall be provided as indicated in the design criteria. Compressed air piping shall be Type L copper. Provide full-port, metal ball valves suitable for use with compressed air at all equipment to provide positive shut off, low leakage valves rated at 150 PSI suitable for piping without dielectric fittings. Provide pressure regulators, filters, quick connect couplings and accessories as required. Label piping and pressure test at 200 PSI for four hours.
- In the wash bay, provide provisions to safely and easily wash the forehead of the vehicles.

4.9.8 Plumbing Equipment

Domestic Water Heater and Accessories:

Each building will be provided with a central domestic water heating system located in the Main Mechanical Room. Water heaters will be commercial vertical ASME tank type with 400 series stainless steel or stainless steel alloy tank. Water heaters shall be heat pump or solar type and shall comply with current adopted energy code, unless certain applications meet code exceptions where electric resistance type is both permitted and is more cost effective.

Central domestic water heating systems shall include high/low flow thermostatic mixing valve(s) and a domestic hot water circulation pump(s)to maintain adequate temperature in the hot water circulation system throughout the building. Domestic water heating systems shall heat water to 140 degrees F and thermostatic mixing valve will be provided to temper water supply temperature down to 110 degrees F for distribution. Showers will be limited to 105 degrees F. Hot water circulation will be within a reasonable time frame from the fixture.

Central domestic hot water system shall be provided with in-line domestic hot water circulation pump to provide hot water to the fixtures within 15 seconds.

Elevator Pumps:

Each elevator shall be provided with and elevator sump and duplex pump to pump out accumulated water. Pump shall discharge to a minimum size of 6-inch industrial waste sewer pipe.

Sand and Oil Interceptor:

All maintenance shop, wash area, etc., floor and trench drains that have the possibility of receiving oily drainage shall be piped to an exterior sand and oil interceptor prior to entering the site sanitary sewer system. Oil interceptor shall be sized in accordance with the Plumbing Code. Interceptor shall be precast concrete located in an accessible area for servicing.

Waste Water Lift Station:

If the waste water drainage piping systems inside the buildings are unable to connect to the site sanitary sewer piping system elevation, a waste water lift stations shall be provided. Waste water lift stations shall consist of duplex ejector pumps each sized at 100 percent of the peak load in a wet well and a separate valve vault. Duplex pumps shall alternate starts and both have the capability to run simultaneously upon rising level. Pumps shall be controlled by float switches. For ease of maintenance pumps shall be provide with stainless steel rail retrieval system. Waste water lift station shall be connected to the emergency generator. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

4.10 HVAC

General:

The NPE shall design, permit, and construct all HVAC systems. All work shall be in accordance with the City and County of San Francisco, local codes and any criteria listed in this document.

The performance goals depend on the level of insulation added to the building envelope and final glazing choice. The NPE shall be responsible for verifying achievement of goals at each progress design deliverable and at permit. Title 24 requires HVAC design use the 0.4 percent ASHRAE design conditions for the current year. These design conditions may be exceeded for a number of hours per year (due to outside temperatures exceeding the ASHRAE 0.4 percent design conditions.) While designing to the ASHRAE 0.4 percent conditions by definition indicates that design set points will be exceeded during peak periods, typical design often requires a minimal amount of over sizing so that control is always maintained.

The SFMTA shall assist the Commissioning Provider in the development and implementation of a commissioning plan for LEED compliance.

Seismic-restraint systems shall comply with California Building Code requirements. Refer to structural for wind- and seismic-restraint loading requirements.

Each area within the Bus Yard shall be evaluated for hazardous area classification following NFPA Section 497 and NEC Sections 500-516. HVAC equipment located within each space shall be explosion-proof if relevant for the class designation (Class I, II, or III). Particular areas of concern include those where cleaning or fuel chemicals will be stored or used.

Air handling units may be either indoor or rooftop mounted and shall be located on rooftops or in enclosures with adequate ducting to intake and exhaust to enable effective operation per the manufacturer conditions. Air handlers must incorporate airside economizers as noted in the DCD. The NPE shall propose the area required for air handlers based on ventilation requirements listed in the DCD, and propose locations for air handlers as part of the response.

Exhaust air ducts for air handlers and direct environmental exhaust from maintenance and other spaces shall not terminate within 3’ of a property boundary or opening of the building or 10’ from a forced air inlet, per CMC Section 502.2.1. Backdraft or motorized dampers are required for all exhaust openings.

Exhaust fans, air handling units, and other mechanical equipment shall be readily accessible for maintenance. Equipment installed above a ceiling must have adequate access through access panels for routine maintenance. Rooftop equipment must be provided with adequate access via a stairwell and at least 5’ clearance around the equipment with a walking path. Access shall be limited to only maintenance personnel via secured openings (doors, access panels, etc.).

4.10.1 Codes and Standards

The following design conditions apply to all interior building types and uses, unless noted otherwise.

Load Calculations:

- Use Radiant Time Series calculation methodology for cooling. Do not use occupancy schedules for cooling system design.
- Do not use internal heating load sources (lights, receptacles, people) when calculating heating system design loads.
- Account for duct leakage in load calculations
- Account for fan heat in load calculations. Model fan static pressure at dirty filter condition.
- Energy modeling programs shall meet all requirements of the USGBC LEED rating program energy modeling requirements. Energy modeling program shall be able to fully simulate all 8,760 hours in a year. The energy modeling program shall be able to separately schedule occupancy, internal loads, lighting, fans, compressors, and other plant equipment. The energy program shall be able to breakout packaged equipment to model supply fan energy separately from packaged energy rates.

4.10.2 HVAC Systems for Cooled and Heated Spaces

Unacceptable Systems:

- Variable Refrigerant Flow systems are not acceptable because the system is proprietary once a specific manufacturer is selected and installed.
- Systems that utilize electric resistance heating as the primary heating source are prohibited.
- Ground source heat pumps and packaged terminal air-conditioners or heat pumps (PTAC/PTHP) are prohibited.
- Split-systems, except for isolated or remote rooms that require air-conditioning or heating and extending the main air or water distribution service is not cost effective.
- Baseboard, fan coil units or other floor-mounted equipment in occupied spaces. Local vertical fan coil units or heat pumps may be used if they are installed in mechanical closets.

4.10.3 System Notes

Systems that use terminal equipment as the primary cooling and air distribution source including, but not limited to fan-coil units, local

heat pumps, chilled beams, etc. shall use a Dedicated Outdoor Air System (DOAS) to deliver outdoor air to occupied spaces. DOAS systems shall use exhaust air energy recovery utilizing total energy wheels. DOAS systems may deliver outdoor air to the return side of terminal devices or direct to space. DOAS units shall cool and dehumidify outdoor air to at least a 52 degrees F dew point prior to distribution to terminal devices or spaces. Provide filters upstream of the energy wheel in both airstreams. Outdoor air filters shall be minimum MERV 13. Exhaust air filters shall be minimum MERV 8. Supply fan motors and exhaust fan motors shall be driven with VFDs. Provide airflow stations in both the outdoor airstream and exhaust airstream and adjust fan speeds to maintain design airflow rates as filters load.

HVAC Zones - Up to four offices may be combined on one thermostat controller, provided the offices have identical solar, or the like, heat loading. If a corner office has two different window exposures, then provide a separate zone controller. Each conference room, training room, lounge or other similar room shall have its own zone controller.

4.10.4 HVAC Systems for Heated and Ventilated Spaces

Required Heating System:

In-floor or overhead radiant heating for maintenance bay areas and wash bays. Other storage rooms and shop rooms in the maintenance area may use forced air heat or overhead radiant heat.

Air Distribution System Design:

- Louvers:
  - ✓ The mechanical engineer shall select and specify louvers for all air associated with the HVAC system design.
  - ✓ Use wind-driven rain louvers.
  - ✓ Orient louvers so that prevailing winds do not oppose exhaust airflow to the maximum practical extent.
- Duct Design:
  - ✓ All ductwork shall be G90 galvanized steel except in areas where special requirements dictate aluminum or stainless steel duct construction.
  - ✓ Duct construction shall be in accordance with SMACNA HVAC Duct Construction Standards except that minimum duct thickness allowed shall be 24-gauge galvanized steel in all locations.
  - ✓ All duct systems shall be sealed to SMACNA Seal Class A.
  - ✓ Duct systems operating at a pressure class greater than 2-inches (positive and negative) shall be constructed of round or oval spiral seam ducts.
  - ✓ Duct elbows that have an air velocity exceeding 2,000 fpm shall have a radius/width ratio of 1.5. Duct elbows that have an air velocity less than 2,000 fpm shall have a radius/width ratio not less than 1.0. All mitered elbows with a turning angle greater than 30 degrees shall use single wall turning vanes. All tees shall include turning vanes. Branch duct taps shall be use low-loss fittings.
  - ✓ Acoustical duct liner shall be flexible elastomeric designed specifically for sound attenuation. Glass fiber or mineral fiber duct liner is not acceptable. Acoustical duct liner in ducts with an air velocity exceeding 2,000 fpm shall utilize double wall duct with a galvanized steel perforated duct liner. Acoustical duct liner in ducts with an air velocity less than 2,000 fpm may use single wall duct.
  - ✓ Provide code minimum duct insulation.
  - ✓ Control actuators shall be mounted outside the airstream.
  - ✓ Outdoor air dampers, exhaust air dampers, and control dampers shall meet AMCA Publication 511 Class 1 leakage requirements.
  - ✓ Dampers at air-handling units mixing plenums and two-position dampers shall be parallel blade. All other control dampers and balancing dampers shall be opposed-blade.
  - ✓ Fire dampers shall be “blades out of airstream” type.
  - ✓ Balancing dampers shall be located in duct branch as far from the supply air terminal as possible.
- VAV Terminal Units:
  - ✓ Acceptable types are single duct shut-off and parallel fan-powered. Preference is for single duct shut-off due to additional maintenance and noise concerns with fan-powered units. Fan-powered units if used shall only use electronically commutated fan motors. VAV units shall be pressure independent.
  - ✓ Select VAV units that can throttle to 20 percent of design airflow to reduce unnecessary reheat.
  - ✓ VAV units shall be double wall construction.
- Air Terminals:
  - ✓ All diffusers, registers, and grilles shall be aluminum construction.

- ✓ Select air terminals with a high air diffusion performance index (ADPI) for the specific room.

Water Distribution System Design:

- Chilled Water Piping
  - ✓ Up to and including 2-inches – ASTM B88 Type L copper (use ASTM B88 Type K copper below grade)
  - ✓ 2-1/2-inches and larger – ASTM A53 Schedule 40 steel.
  - ✓ Pipe insulation – fiberglass, thickness as required by ASHRAE 90.1. Provide ASJ with vapor retarder on all chilled water piping. Chilled water piping greater than 1-1/4-inches located in unconditioned spaces and in all mechanical rooms shall use minimum 2-inch thick phenolic or 3-inch thick cellular glass. Chilled water piping 1-1/4-inches and smaller shall use 1-1/2-inch thick flexible elastomeric.
  - ✓ Pipe jacket – provide ASJ with vapor barrier in all locations. Provide PVC jacket in mechanical rooms and other areas subject to damage. Provide stainless steel jacket outdoors above grade.
- Chilled Water Condensate Piping
  - ✓ Up to and including 2-inches – ASTM B88 Type L copper (use ASTM B88 Type K copper below grade)
  - ✓ 2-1/2-inches and larger – ASTM A53 Schedule 40 steel.
  - ✓ Pipe insulation – fiberglass with ASJ and vapor barrier or flexible elastomeric. Thickness as required to prevent surface condensation. Provide cleanouts on high ends of condensate piping.
- Heating Water Piping
  - ✓ Up to and including 2-inches – ASTM B88 Type L copper (use ASTM B88 Type K copper below grade)
  - ✓ 2-1/2-inches and larger – ASTM A53 Schedule 40 steel.
  - ✓ Pipe insulation – fiberglass, thickness as required by ASHRAE 90.1. Provide ASJ with on all heating water piping.
  - ✓ Pipe jacket – provide ASJ in all locations. Provide PVC jacket in mechanical rooms and other areas subject to damage. Provide stainless steel jacket outdoors above grade.
- Radiant Floor Heating Piping
  - ✓ Cross-linked high density polyethylene (PEX) manufactured in accordance with ASTM F876 and ASTM F877. Radiant floor tubing shall carry a minimum 30-year warranty.
- Pipe Hangers
  - ✓ Provide clevis type hangers with insulation shield, minimum 12-inches long centered in hanger. Strut systems may also be provided with protective insulation shield.
  - ✓ Use pipe rollers, guides, and expansion loops as necessary to accommodate thermal expansion.
- Flow meters, Separators, and Expansion Tanks
  - ✓ Provide in-line electromagnetic type. Provide isolation valves on both sides of meter with minimum straight pipe distance recommended by flow meter manufacturer.
  - ✓ Provide air and dirt separator in chilled water and heating water systems at plant. Provide dirt separator in condenser water system. Provide isolation valves on both sides of separator.
  - ✓ Expansion tanks shall be welded steel closed bladder type, tested and stamped in accordance with ASME SEC VIII, rated for working pressure of 125 PSIG, with replaceable flexible heavy-duty bladder.

Refrigerant Distribution System Design:

- Refrigerant Piping shall be ACR copper.
- Pipe insulation – Flexible elastomeric, thickness as required by ASHRAE 90.1. Insulation both suction and gas piping separately.
- Pipe jacket – Provide PVC jacket in mechanical rooms and other areas subject to damage. Provide stainless steel jacket outdoors above grade.
- Use only brazed joints.

4.11 Equipment

General:

- All motors powered by variable frequency drives shall include a motor shaft grounding ring. All motors shall be premium efficient. Use direct drive motors where available
- Use electronically commutated motors in small, low power applications where available. Provide minimum 6-inch tall concrete housekeeping pads for major equipment
- Fouling factor for heating water heat-transfer coils shall be at least 0.00025 hr-ft, 2 degrees F/Btu.
- Provide buffer tanks if system water volume is below recommended minimum system values as directed by manufacturers.

4.11.1 Air-Cooled Chillers

Provide a factory assembled and tested, positive displacement packaged chiller. Design for primary variable flow to avoid unnecessary constant volume pump energy.Select chillers that maximize IPLV. Select chillers that have minimum turndown of 25 percent or lower. Provide chiller with the following features: Factory installed evaporator flow switch. Provide condenser coil with factory applied coating to protect against salt water corrosion. Air cooled chillers to be provided with these features.

- Microchannel condenser coil
- Low ambient controls to 0 degrees F
- Single point of power and integral disconnect switch
- Factory-insulated evaporator
- Hail guards
- Chiller heater
- Controls transformer

4.11.2 Central-Station Air-Handling Units

Central-station air-handling units shall be 18-gauge galvanized steel double wall casing. Casing insulation shall be a minimum R-12 rigid insulation. Insulation shall not be exposed to airstream. The casing air leakage rate shall be no more than 1 percent at 8-inches of water gauge pressure.

Hinged access doors shall be provided in every section requiring routine access for maintenance including, mixing plenums with damper actuators, filter section, access sections for coil cleaning, and fan sections. Provide LED lights in all access sections. Access doors shall be thermally broken and gasket around door perimeter.

Provide base rail and concrete pad combination necessary to support correctly sized condensate drain trap. Minimum base rail height shall be 6-inches.

Provide 4-inch thick MERV 8 pre-filters and MERV 13 pleated final filter. Each filter bank shall have a separate differential pressure gauge and separate analog inputs to BAS.

Provide window and lights in fan sections.

Hydronic coils shall be AHRI rated. Provide coils with thickest fin option. Provide coils with manufacturer applied coating to protect against salt air corrosion. Drain pans in chilled water coil section shall be stainless steel and constructed in compliance with ASHRAE Standard 62.1. Maximum face velocity for chilled water coils shall be 500 fpm.

Air-handling unit fans shall be direct drive plenum type, minimum Class II fan construction. Air-handling units greater than 20,000 CFM shall use at least two supply fans. Select fan and motor with pre-filter and main filter both at dirty filter conditions.

4.11.3 Heating Water Boilers

Boilers shall be certified and listed in accordance with AHRI.

UL Compliance: Boilers must be tested for compliance with UL 834, “Standard for Heating, Water Supply, and Power Boilers-Electric” Boilers shall be listed and labeled by a testing agency acceptable to authorities having jurisdiction.

ASME Compliance: Condensing boilers must be constructed in accordance with ASME Boiler and Pressure Vessel Code, Section IV “Heating Boilers”.

Minimum of two boilers each sized at minimum 75 percent of design peak plant demand.

Stage boilers to provide maximum plant efficiency while maintaining minimum recommended flow rates through operating boilers.

Provide boilers to support variable-primary flow system configuration. Provide heating water boilers that do not require constant volume circulators.

Pipe boilers in reverse-return configuration at the boiler plant. Provide balancing valves on the low-pressure side of each boiler. Provide motor-operated isolation valves at each boiler to automatically shut-down flow through non-firing boiler.

Provide control interface to the BAS system.

4.11.4 Circulating Pumps

- Use split-coupled vertical in-line pumps
- Provide at least one pump to meet design flow condition and at least one back-up pump for all system types. Program pumps to alternate between operating duty and backup duty to equalize runtime.

4.11.5 Water-Source Heat Pumps (WSHP)

Water-Source Heat Pump systems may use either tower/boiler water loop.

WSHP units 6-tons and smaller shall be use two-stage compressors and have an electronically commutated supply fan motor capable of automatically changing fan speed in response to space temperature demand. Size WSHP zones to maintain unit sizes no greater than 6 tons.

4.11.6 Chilled Beams

Chilled beam systems shall include temperature sensors and control algorithms to prevent condensation.

4.11.7 HVAC Controls

All HVAC equipment shall be fully integrated into a Building Automation System (BAS). All control set points shall be able to be viewed and remotely changed from the BAS operator workstation. Control and monitoring points available through equipment manufacturer's controller (including, but not limited to chillers, boilers, packaged DX-equipment, computer room units, etc.) shall be fully integrated with the DDC control system. This shall include all instrumentation and interface points.

All equipment shall operate on the local BAS controller or integrated packaged unit manufacturer's controller. The unit controllers and packaged equipment controllers shall have two way communication with the BAS and allow all control functions, alarms, operating schedules, set points, set point adjustment, optimum start and optimum stop sequences relayed to the BAS using BACnet protocol. The unit controller shall retain programming, schedules, and set points in the event of a power loss. Critical HVAC equipment shall have its control system on backup battery and emergency generator. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

Provide control products including controllers, sensors, actuators, control dampers and devices required to make a complete and functional control system. Provide air measuring stations for outside air intake.

Provide items for operating and controlling heating, cooling, ventilating, systems and equipment for energy management and conservation. Include piping, wiring, conduit, control panels, thermostats, timers, and recording and alarm devices. Interlock controls with site BAS. System and components must be BACnet compliant.

4.11.8 Energy Metering

All energy meters shall report both consumption and demand for each system and sub-system listed. Energy data shall be fully integrated into the BAS. The BAS controls contractor shall be responsible for ensuring all connections from the energy meters to the BAS system are made and are fully functional. Provide separate electrical meters for:

Process power loads such as lighting must be metered and monitored by BAS separate from normal building consumption to have a comparable baseline between actual energy consumption and modeled energy.

Provide and monitor heating water system Btu meter for each unique boiler plant. Provide and monitor chilled water system Btu meter if applicable. Water flow meters shall be in-line electromagnetic type.

Provide and monitor domestic water meter(s).

The power monitoring system shall monitor points in power distribution system and be able to provide local and remote readings. The power monitoring system shall, through software on a personal computer workstation and be able to monitor multiple devices at one time. The electronic meters shall provide metering values such as frequency, current, voltage, power factor, power, demand current and real power, and accumulated real and reactive energy. Meters shall retain historical circuit data, time and date, setup and configuration values, and diagnostics data in the event of a control power failure, without the need for an internal battery. Meters shall be installed in all switchboards, switchgear, emergency power distribution devices and selected panelboards to obtain a clear understanding of the power consumption within the facility. Meter locations shall allow the user to monitor, track and produce reports of the energy usage of the Operations, Operator, SFMTA and any other tenant within the facility. The metering software shall be able to be installed on multiple devices, personal computers, as required.

The monitoring system shall provide the needed information for the PNC to develop and maintain an energy model and energy management plan.

4.11.9 Systems Testing and Balancing

Piping and Air Systems Testing, Adjusting and Balancing: Testing, adjusting and balancing agent must be AABC, NEBB or TABB certified. Makeup air units, exhaust fans, and air distribution system to be balanced in accordance with certifying agency standards. All system controls operation to be verified. Assist the Commissioning Provider as needed.

4.11.10 Building Automated System

The Building Automated System (BAS) shall be non-proprietary open protocol, BAC-net capable, and designed to be fully interoperable the existing SFMTA network of BMS systems presently functioning in other buildings. The NPE will coordinate with the SFMTA with respect to the SFMTA's established BAS system architecture, as well as standards and procedures in how to automate, record and track building systems and their performance over time. This shall include the ability for the SFMTA to monitor and manage the Facility's BAS system remotely using any PC that is connected to the SFMTA BAS internal network. The BMS shall be developed in coordination with the Project's Building Information Model (BIM).

SECTION 4 - PERFORMANCE REQUIREMENTS

4.12 Fire Protection

General:

The Bus Yard Component shall be fully protected with automatic fire suppression systems including wet and dry pipe automatic sprinklers, in-rack or ESFR sprinklers in high rack storage area, and fire department standpipe hose valve stations, and clean agent gas fire suppression systems.

A minimum of two fire department connections (FDC) shall be provided for the Facility on separate streets in locations approved by the San Francisco Fire Department (SFFD), each FDC shall be located within 100 feet of a fire hydrant. Provide FDC signage as required by the SFFD.

Provide a complete sprinkler system design, including sprinklers, branch lines, floor mains and risers, shown on the drawings. The sprinkler system plans shall include node and pipe identification used in the hydraulic calculations. Shop drawings, seismic and hydraulic calculations shall be provided as specified in NFPA 13 and 14. Fire suppression system permit plans and hydraulic calculations shall be sealed by an appropriately licensed fire protection contractor.

4.12.1 Fire Pump

Conduct a fire water flow test prior to design. If the fire flow test demonstrates insufficient water supply to satisfy the expected fire suppression demands coordinate with the City necessary infrastructure upgrades.A fire booster pump system shall be provided to supply fire water to the Project.

- A jockey pump shall be provided to maintain the system pressure.
- Fire pump shall be provided with both a test header and a closed test loop with flow meter.
- Fire pump shall be provided with an automatic transfer switch to transfer power from the building emergency generator. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

Sprinklers:

- Office Areas, Toilet Rooms, Locker Rooms, Lounges, Conference Rooms and similar type areas sha be designed based on Light Hazard Occupancy. The minimum design density shall be 0.10 GPM/sf over the hydraulically most remote 1500 sf with a maximum sprinkler spacing of 225 sf. Hose stream allowance shall be 100 GPM.
- Office Storage Rooms, Custodial Rooms, Mechanical and Electrical Rooms and similar type areas shall be designed based on Ordinary Hazard Group 1 Occupancy. The minimum design density shall be 0.15 GPM/sf over the hydraulically most remote 1500 sf with a maximum sprinkler spacing of 130 sf. Hose stream allowance shall be 250 GPM.
- Shops and Service Areas (Non-Vehicle Maintenance) and similar type areas shall be designed based on Ordinary Hazard Group 1 Occupancy. The minimum design density shall be 0.15 GPM/sf over the hydraulically most remote 1500 sf with a maximum sprinkler spacing of 130 sf. Hose stream allowance shall be 250 GPM.
- Vehicle Maintenance Shops and Service Areas and similar type areas shall be designed based on Ordinary Hazard Group 2 Occupancy. The minimum design density shall be 0.20 GPM/sf over the hydraulically most remote 1500 sf with a maximum sprinkler spacing of 130 sf. Hose stream allowance shall be 250 GPM. The fire system in the main shop shall be designed to shut down the high voltage traction power instantaneously when the sprinkler or standpipe system is activated.
- Loading docks and building canopies with storage or vehicles parked beneath shall be provided with dry pipe automatic sprinkler systems with design based on Ordinary Hazard Group 2 Occupancy. The minimum design density shall be 0.20 GPM/sf over the hydraulically most remote 1950 sf or largest room, whichever is less, with a maximum sprinkler spacing of 130 sf. Hose stream allowance shall be 250 GPM.
- Storage areas with storage 12-feet or less high shall be based on protection of Class IV encapsulated commodities stored on racks up to 12-feet high. Automatic sprinkler design shall be based Miscellaneous Storage, Extra Hazard Group 1, with minimum design density shall be 0.30 GPM/sf over the hydraulically most remote 2500 sf with a maximum sprinkler spacing of 100 sf.
- Storage areas with high rack storage above 12-feet high shall be based on protection of Class IV encapsulated commodities. High hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets and similar commodities shall not exceed a height of 5-feet, stored on racks spaced 8-feet or greater apart, with storage up to a maximum height of 20-feet high. Automatic sprinkler design shall be based on in-rack sprinklers accordance with NFPA 13

with a maximum sprinkler spacing of 100 sf for ceiling sprinklers. Comply with NFPA 13 for ESFR coverage if used.

- In addition to the sprinkler systems, Maintenance, Inspection, Service and High Rack Storage (over 12-feet high) Areas shall be provided with a 2-1/2-inch fire department valve stations including a 2-1/2-inch angle valve with a capped outlet for fire department hose connection.
- For dry automatic sprinkler systems, the hydraulically most remote area shall be increased 30 percent.
- Dispatch and IT Server Rooms shall be provided with clean agent fire extinguishing gas system.
- Heads shall be centered in ceiling tiles where acoustical ceiling tile is present. Two-piece adjustable escutcheons and extended coverage heads are prohibited.

Clean Agent Fire Suppression:

- Clean agent fire suppression systems shall be provided in Communication Rooms, Data Rooms and Computer Rooms where critical or high cost computer/network equipment is present. Clean agent suppression system shall be either fluorinated ketone (PFC) type clean agent or an inert gas system.
- Provide back-up wet automatic sprinkler systems in rooms with clean agent unless required by AHJ. If wet system is required, system shall be a preaction type dry system.

Standpipes:

- A Class 1 Standpipe system shall be provided throughout the Facility for Fire department access. Provide 2-1/2-inch fire department valves in accordance with NFPA 14.
- Provide standpipes to the roof per code and shall verify with San Francisco Fire Department. Walkways and ladders will be requested to provide access to locations inaccessible to ladder trucks.
- Automatic shutdown of OCS power systems shall be provided in response to fire detection or activation of fire suppression system.

Fire Suppression Piping:

- Fire water service from the existing site fire water main shall be routed below grade to provide service to each building. Underground fire service from inside 5-feet of the building to inside shall be ductile iron or stainless steel. Underground service shall be wrapped in accordance with AWWA C105.
- Schedule 10 black steel pipe with roll-grooved ends and uncoated fittings for piping 2 inch and smaller. Schedule 40 black steel pipe with roll-grooved ends and uncoated fittings for piping 2-1/2-inch and larger. Dry pipe sprinkler system piping shall be Schedule 40, galvanized steel.

Fire Alarm and Supervisory Systems:

- Automatic sprinkler water flow alarm(s) shall be provided and connected to the fire alarm system and transmit a water flow alarm to the Fire Department and building fire alarm. Sprinkler valve tamper switches shall transmit a trouble alarm to the Fire Department and provide a local audible signal. Sprinkler systems shall have inspector's tests stations. Coordinate monitoring of tamper and flow switches with fire alarm contractor.

4.12.3 Fire Protection Specialties

Provide firefighting devices and storage cabinets, not including items or devices physically connected to a fire protection system. Include the following:

- Fire Extinguishers (FE) on brackets attached to wall.
- Fire Extinguisher Cabinets (FEC).
- Signage and Pavement Markings.
- Fire Department Key Box. As required by SFFD.

4.13 Electrical

General:

- The NPE shall design, permit and construct all power, lighting, control, communications, fire alarm, and security systems as described in all Sections of this Design Criteria. All work shall be in accordance with the listed Criteria. The Electrical Scope of Work shall include, but not be limited to:
  - ✓ Site investigation to examine existing conditions
  - ✓ Coordination with PG&E, the SFMTA representatives, building department, and other AHJ.
  - ✓ Preparation of Construction Documents including drawings, calculations, analyses, protective device coordination, specifications, shop drawings and other necessary documents to fully describe the electrical work and to prove compliance with the listed criteria.
  - ✓ Design and construction of Electrical components in accordance with listed seismic design requirements.
  - ✓ Preparation of forms and exhibits as required to show compliance with prescribed energy and sustainability codes, standards and guidelines.
  - ✓ Completion of necessary forms and

documentation for electrical permits and energy code compliance as it pertains to the electrical work.

- ✓ Work with the SFMTA IT Department to define the power for systems components. Define requirements for power and communication conduit to meet systems requirements.
- ✓ Coordinate all electrical design work with the mechanical designer(s) and Facility design engineers to ensure all items requiring electricity are connected as well as environmental conditions for equipment such as the UPS batteries are met.
- ✓ Coordinate between the elevator contractor and the electrical contractor work to meet all applicable local/state codes. This shall be delineated in the specifications and the design.
- ✓ Identify general location of equipment to define chases, duct-banks and support requirements to be included in building and structure. Provide information to architects and ensure that space is provided.
- ✓ Testing, coordination, observation, commissioning and reporting.
- ✓ Design and construction of BEB infrastructure, per Division 5 (*Battery-Electric Bus Supplemental Criteria)* of the Technical Requirements.
- ✓ Design and construction of electrical infrastructure and fit-out of electric non-revenue vehicle charging.
- ✓ Coordination, disconnection, and reconnection of OCS Traction Power system to support trolley bus charging.

Calculations and Analyses:

- Submit the following calculations and analyses, sealed by a Registered Professional Engineer:
  - ✓ Demand load as calculated per requirements of NFPA 70 Article 220.
  - ✓ Lighting Photometrics: Submit point-by-point calculations for 100 percent of the site and each unique room type in the buildings. Submit separate calculations proving compliance with NFPA 101 for emergency/egress lighting.
  - ✓ Emergency generator – provide calculations proving the capability of the proposed generator to serve the required emergency loads plus 25 percent spare capacity. The analysis shall assume the spare capacity load to be constant kVA load. Analysis shall include starting of motor loads as sequenced by the BAS. Calculations shall assume generator operation with diesel fuel source. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.
  - ✓ Short circuit – provide calculated momentary (0.5 cycle) fault current values for all 15 kV and 480V busses, and 208/240V panels served from 75 kVA or larger transformers.
  - ✓ Arc flash (hazard analysis, arc flash boundary, incident energy) – provide calculation results for all busses 150V (AC and DC) and greater.
  - ✓ Voltage drop – provide calculations for the main building services, feeders longer than 50-feet, all site lighting branch circuits, and all branch circuits longer than 75-feet or loaded greater than 50 percent of the circuit rating.
  - ✓ Protective device coordination – provide time-current curve (TCC) plots showing proper coordination of all panel main breakers with upline devices, coordination of switchboard feeder breakers with main breakers and coordination of switchboard main breakers with 15 kV feeder relaying.
  - ✓ Fire Alarm – provide battery capacity calculations proving compliance with NFPA 72.
  - ✓ UPS – provide battery capacity calculations.

Building Electrical Service:

- 480Y/277V shall be provided for the facility from the utility-owned transformer and electrical service. The service shall be sized using Appendix C as a guide, with final calculations provided and verified by the NPE. The building service shall be rated to carry 150 percent of the building demand load at 104 degrees F maximum, and 86 degrees F average daily temperature. The NPE shall accommodate any required electrical equipment for the building service in accordance with PG&E and SFPUC requirements.
- Low voltage service from the PG&E service equipment to the building switchgear shall be routed in a concrete encased duct bank. Two spare conduits shall be provided.

4.13.1 Building Power Distribution

- The building power distribution shall be organized substantially as presented in Appendix C, or as required by the SFPUC

or PG&E in response to the Applications for Electrical Service initiated by the SFMTA. The main switchboard shall be rated for 150 percent of the building demand as calculated per NFPA 70 Article 220, 480Y/277V and provided with the following:

- ✓ Aluminum phase bussing with a solidly grounded aluminum neutral bus and aluminum ground bus.
- ✓ Allow aluminum feeder conductors for loads over 125A ILO copper.
- ✓ A main circuit breaker with intelligent solid-state LSIG trip units with data communications.
- ✓ Fully rated feeder circuit breakers with solid-state intelligent LSIG trip units with data communications to serve the essential loads.
- ✓ Fully rated feeder breakers with solid-state intelligent LSIG trip units for the shop and building distribution panelboards.
- ✓ A digital power metering system capable of providing data to the BAS.
- ✓ A Surge Protective Device integral to the switchboard, sized to protect all facility elements served through the switchboard.
- ✓ Backup power for switch gear control circuit.
- ✓ Transformers supplying non-linear loads will be K-rated.

- Building distribution shall be provided via a system of 480Y/277V circuit breaker distribution panelboards and a combination of 480Y/277V and 208Y/120V smaller branch panelboards. Electrical panels shall have copper or aluminum buses with bolt-in circuit breakers. Plug-in circuit breakers will be allowed for circuit breaker sizes over 100 amperes where a positive locking device is available to retain the circuit breaker in place. Panelboards shall be provided with a main circuit breaker and shall be fully rated for anticipated fault current levels. Panelboards serving non-linear loads shall be furnished with a 200 percent rated neutral bus. Series rated circuit breakers shall not be used. All branch circuit and lighting panelboards shall be fully populated with circuit breakers. 20 percent of the circuit breakers in each panel shall be spares. Distribution panelboards shall have spare spaces amounting to 20 percent of the total breaker space. Conductors for all power circuits shall be THHN/THWN insulation.
- Sub-Metering: Building loads shall be sub-metered for energy consumption. Metering and data collection shall be provided as required for LEED EA Credit “Advanced Energy Metering”. Load sub-categories shall also be metered.

Interior Lighting:

- All interior and exterior lighting shall employ fixtures with LED light sources. Interior lighting will generally be served at 277V in order to reduce circuit losses.
- Lighting in administrative areas shall typically be provided from LED direct/indirect grid troffers and recessed downlights. All spaces having a lay-in grid ceiling shall employ recessed fixtures, except spaces with ceiling heights of 9-feet or greater may be provided with pendant/stem mounted linear direct/indirect architectural fixtures.
- Exit signs shall be internally illuminated LED type. The emergency lighting at the exterior egress doors shall be provided to illuminate the path of egress outside of the exit.
- Lighting in the maintenance, shop and warehouse areas shall be LED high-bay fixtures. Maintenance pit lighting shall be enclosed and gasketed 4-foot strip LED fixtures with IP66 rating. Fixtures shall be mounted on or adjacent to the track support structures, with provisions to allow the individual fixtures to be rotated by hand to any angle from +90 degrees to -90 degrees relative to horizontal.
- Individual offices, group offices and conference room lighting shall be controlled with dual-technology occupancy sensors and daylight dimming controls. Lighting in conference rooms and training rooms shall be designed to an average level of 30 foot-candles, and shall be dimmable to 5 percent of maximum output.
- Spaces without occupancy-based controls shall be provided with lighting controls that operate on a scheduled time-of-day basis with one or more override switches to selectively extend lighting past the scheduled shut-off time. All controls shall conform to ASHRAE 90.1 guidelines.

Engine Generator:

- A diesel-fueled engine generator set shall provide power for the emergency/standby system loads. The presence of life safety loads requires the generator to be diesel powered. Generator set capacity shall be 125 percent of the calculated demand of the designated emergency loads. Provide a storage tank with a capacity to store 24 hours

of fuel at a generator output of 100 percent of nameplate rating. See Section 4.8.1 for the resilience and recovery requirements for the facility. Provide the following accessories and options:

- ✓ IBC seismic certification.
- ✓ Corrosion-resistant sound attenuating enclosure.
- ✓ Lead-acid starting battery.
- ✓ Remote control/annunciator panel having all capabilities of the local control panel. The remote panel shall be located interior to the East in a normally-occupied space.
- ✓ Control panel shall have network communications capability.
- ✓ Engine block heater, jacket type heater for starting battery.
- ✓ Alarms for low LP fuel tank level.
- ✓ Alarm for low battery voltage.
- ✓ Alarm for battery charger failure.

The code-required emergency power for the lights will be provided from the generator. In addition to the emergency lighting load and other life safety loads, it is anticipated that the generator may be designed to carry additional loads within the facility. IT/communications systems, some HVAC loads, some bus charging loads, and some industrial equipment loads may be connected to the generator. The exact composition of the emergency loading will be coordinated with the SFMTA during the design phase. This loading will drive the generator sizing to handle the load and methods of facility operation in accordance with the SFMTA requirements. Some luminaries may be connected to the generator to provide operational lighting in the event of a power outage.

Items that must be on emergency power:

Life Safety Loads:

- Pathway egress lighting
- Exit lighting
- Fire alarm systems
- Other loads to ensure human life safety

Critical Electrical Loads:

- IT/Data rooms and systems
- Security systems
- Communications systems
- HVAC equipment serving these spaces
- HVAC control system
- Elevator(s)
- Fume ventilation systems

Additional Emergency Loads:

- Automatic garage door openers at entrances and exits of building.

Optional Emergency Loads:

- Compressor(s) and dryer(s).
- Lube pumps - the SFMTA with the assistance of the design team to specify during the PDA design phase.
- Four maintenance bays - SFMTA will the assistance of the design team to specify during the PDA design phase.
- Section 4, Sitework, describes the SFMTA coordination underway with PSE to provide separate power feeders to the East site and the E335 TPSS.

Automatic Transfer Switches/Load Bank:

- Multiple automatic transfer switches (ATS) shall be provided to transfer loads between the normal power system and the emergency power system. Loads shall be assigned to the ATS in accordance with NEC Article 700. Provide a load bank to allow exercising the generator under load without interruption of the building emergency loads. The load bank shall be sized at 100 percent of the maximum generator rating and shall have a step load capability in increments of 25 percent, 50 percent, 75 percent and 100 percent of the load bank rating. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

UPS System:

- Loads which cannot tolerate more than a ¼ cycle interruption shall be provided with internal or dedicated battery backup and/or connected to a central UPS or inverter system. These loads include, but are not limited to:
  - ✓ Fire alarm systems (battery).
  - ✓ CCTV systems (UPS).
  - ✓ Telecommunications equipment (UPS).
  - ✓ Emergency Telephone System (ETEL) (UPS).
  - ✓ AC/DC switchgear controls (battery).
  - ✓ BAS PLC (UPS).
  - ✓ Access control (UPS).
- The building UPS systems shall be sized to serve the anticipated demand load plus spare capacity of 25 percent. The UPS batteries shall be sized to carry the maximum UPS rated load for a period of 90 minutes. The NPE shall submit calculations which support the required size of the UPS and batteries. The UPS input shall be fed from the generator or the secondary utility feed for continued operation following the rated load period of 90 minutes. A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

Service & Distribution:

- Dry-type distribution transformers shall be utilized to provide the 208Y/120V service to the branch panelboards serving the convenience receptacle and small motor loads. All dry-type distribution transformers shall be energy efficient type having the Energy Star rating. Dry-type transformers shall be VPI insulated. Indoor dry-type transformers shall have copper or aluminum windings, 220 degrees C insulation and shall have a maximum winding temperature rise of 115 degrees C above an ambient temperature of 40 degrees C. Where transformers serve a significant amount of non-linear loads, the transformers shall have a "K" rating to handle the additional heating caused by high-harmonic load content. The neutral of secondary feeders from K-rated transformers shall be sized at 200 percent of the ampacity of the phase conductors.

Disconnecting Means:

- Receptacles for all small equipment loads may serve as the disconnecting means. 480V and 208V loads shall be provided with a disconnect (safety) switch with means to padlock disconnect in the off position. All safety switches shall be heavy-duty type. Transformers not located within eyesight of their source panel shall be provided with a disconnect (safety) switch on the primary side of the transformer.
- Motor loads ½ horsepower and larger shall be served at 480V 3 phase. Small fractional horsepower motors shall be served at 120V 1 phase. Shop equipment loads shall be served at 480V 3 phase, 208V 3 phase, 208V 1 phase, or 120V 1 phase as per their requirements. Convenience receptacles shall be served at 120V 1 phase.
- Welding equipment shall be supplied from dedicated panelboards.

Grounding:

- A quality single-point grounding system shall be provided in the main electrical room consisting of a main grounding bus bar (MGB) connected to a building counterpoise. The building steel frame, water service entrance pipe (if metallic piping is used, electrical equipment ground conductors, isolated ground conductors, and telecommunications and data system ground shall be connected to the MGB. The Main Telecommunication Room (MTR) and each telecommunications room or telecommunications closet (TR/TC) shall be provided with a copper or aluminum telecommunications ground bar (TGB). The Main Telecommunication Ground Bar (MTGB) shall be located in the MTR. A #3/0 AWG Telecommunication Bonding Backbone (TBB) shall connect the MTGB, the TGBs and the MGB. Grounding for communication circuits shall be in accordance with TIA/EIA J-STD 607 and Motorola R56 standards.
- All metal raceways shall include an equipment grounding conductor sized in accordance with NFPA 70.

Lightning Protection:

- NPE shall perform a risk assessment calculation as shown in NFPA 780, Annex L to assess the lightning risk to the facility. If the risk assessment recommends lighting protection, it may be added by SFMTA at a future date via change order.

4.13.2 Electrical System Sustainability

The Project shall comply with all energy and electrical efficiency requirements in the San Francisco Municipal Green Building Code (Environment Code Chapter 7), which shall supersede the narrative provided in this DCD.

Energy and Emissions:

- The emergency generator shall be specified to meet EPA emission requirements for gaseous fueled engines.
- A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.

Energy Efficiency:

- Lighting shall be designed to minimize the electricity consumption required and will meet or exceed the requirements of ASHRAE 90.1 and state and local energy codes.
- Electrical motors shall be the premium efficiency type.
- Transformers shall meet or exceed NEMA minimum efficiency ratings.
- Lighting controls shall be employed to reduce energy consumption. Vacancy sensors shall be provided in offices, conference room and other similar areas. Occupancy sensors shall be provided in janitor's closets, bathroom, locker rooms and other similarly occupied spaces. Time of day lighting controls shall be provided to turn lighting off throughout the building at specific times specified by the building or department user. A two hour over ride switch shall be provided to allow the lighting to remain on if someone is working additional hours. Lighting shall be able to be switched to 50 percent level when building cleaning staff is on site so that building lights

to not have to be fully energized for this task. If daylighting can be employed, daylighting sensors may be used to reduce the lighting in areas where there is sufficient daylight to perform the required tasks.

Alternative Energy Sources:

- Solar Power:
  - ✓ NPE shall integrate a photovoltaic (PV) power system installation, consistent with the Municipal Green Building Code.
  - ✓ The PV system installation shall conform to NFPA 70 Article 690 and requirements of PG&E.
  - ✓ PV system shall supply power to the BYC. PV connection to the CIC is also acceptable.
- Battery Storage:
  - ✓ NPE is encouraged to include on-site battery storage to maximum on-site power generation and storage potential to provide emergency backup power for the BYC or the future BEB fleet specifically.

Commercial Equipment:

- NPE shall coordinate with third party commercial suppliers of vending machines, wash soap, fluids utilized in maintenance shops, sand, parts suppliers and any other commercial supplier as indicated by the SFMTA to determine space and access requirements and incorporate this information into the facility layout.

4.13.3 General Arrangement and Infrastructure Requirements

- Special attention shall be made to ensure that equipment provided meets the requirements of the SFMTA prescriptive specifications and is fully compatible in form, fit and function with existing equipment as defined. Conduit in interior shop areas, external locations, the storage building or any locations subject to potential damage shall be rigid conduit. Conduit in interior office areas shall be EMT conduit. Where potential damage is limited, MC conduit can be used.

4.13.4 Telecommunication Rooms and Closets

- The Telecommunication Room for each floor shall be environmentally controlled with HVAC equipment, lighted and fire protected. The Telecommunication Room shall be provided with keycard access and intrusion detection.
- Main Communication Room shall have all HVAC equipment requirements needed to keep the room and systems cool.
- In addition to the Telecommunication Rooms, the NPE shall provide IT closets as required to ensure that raceway runs from data outlet or Ethernet connected equipment to the Telecommunication room or the nearest IT closet is not more than 275-feet.
- IT closets, if provided, shall have louvered doors to facilitate heat transfer from the room. Powered and temperature controlled exhaust fans are required for each IT closet if the IT closet electronics consumes over 80 watts of power.
- Lighting shall be configured parallel and in the front and back of all NPE and the SFMTA required racks.
- Space and lighting requirements, including clearance in front and back of racks, in the Telecommunication rooms and closets shall conform to the latest version at time of notice to proceed of the Building Industry Consultants Service Industry Transmission Distribution Methods Manual (BICSI TDMM).
- An AC sub-panel with a separate 20A 120V breakers for each equipment rack (five (5) racks per room) shall be provided for the IT room. This sub-panel shall be supplied by the standby power circuit. Four (4) wall mounted 20A 120V convenience receptacles shall be provided in the Telecommunication room and one in each IT closet.
- Cable trays shall be provided along the perimeter of the Telecommunication room and over the planned location of the five (5) racks to support all required cabling systems. Cable trays shall be sized for maximum 40 percent fill; minimum width shall be 9-inches.
- Where ceilings are provided, control conduits and wiring will be run as high above the ceiling as possible to allow easy removal of ceiling tiles without interference due to control or communication subsystems.
- Cable runs above ceilings which are not in cable trays shall be supported by J-hooks specifically manufactured for supporting cable systems.
- For basis of design, the cooling provision of 20 tons shall be used. Actual heat loads and cooling equipment sizing shall be determined during final design.
- Telecommunications Rooms shall house the incoming telecom service conductors, the NPE shall provide or install IT/ Communications conductors or fiber optic cables, the E750 NPE shall provide and install fiber optic cables, and owner provided telecommunications switch, horizontal cross connects and equipment racks.

4.13.5 Phone Jacks and Cabling

- Phone Jacks and Cabling are limited to the communications methods of the FACP to the remote Supervising Station and to the telephone and monitoring of the elevator(s).

4.13.6 Network Ethernet Switches

- The NPE shall coordinate with the SFMTA IT prior to design of the Data Room and TR/TCs for the space, power, cooling, bonding and other requirements of the SFMTA IT Network Ethernet Switches and other equipment.
- The SFMTA will install Network Ethernet Switches and other equipment in the Data Room and TR/TCs referenced in this chapter during the warranty period. The NPE shall not invalidate the warranty based on the SFMTA Network Ethernet Switches and other equipment installation.

4.13.7 IT Servers

- The NPE shall coordinate with the SFMTA IT prior to design of the Data Room and TR/TCs for the space, power, cooling, bonding and other requirements of the SFMTA IT servers and other equipment.
- The SFMTA will install IT Servers and other equipment in the Data Room and TR/TCs referenced in this chapter during the warranty period. The NPE shall not invalidate the warranty based on the SFMTA IT Servers and other equipment installation.

4.13.8 IT Equipment Procurement

- Customized IT systems such as Radio, Computer Aired Dispatching, Access Control, Cameras, Fleet Watch (including antenna location to capture bus information), and others shall be addressed in detailed design and equipment procurement in coordination with the SFMTA. The SFMTA expects that available IT infrastructure may evolve by the time construction is completed and therefore will do a final review of the IT equipment and supporting infrastructure prior to their ordering and installation.

4.13.9 Closed Circuit Television System (CCTV)

- The NPE will work with SFMTA Security staff to ensure all camera locations are correct and that camera views meet their needs. The NPE shall design the quantity and location of cameras for the CCTV system using APTA IT-CCTV-RP-001-11," APTA Recommended Practice for the Selection of Cameras, Digital Recording Systems, Digital High-Speed Networks and Trainlines for Use in Transit-Related CCTV Systems".
- Camera views will be selected based on their function, location and resolution. The NPE shall submit the CCTV design site plan that shows camera locations, coverage, camera function and the camera model for each location. Submittal shall also include required views generated from the project 3D model from each camera location. The camera design layout shall be approved by SFMTA Security staff prior to implementation. Once the design is approved, no changes shall be made without SFMTA Security staff's acceptance.
- The CCTV system shall be compatible with and integrated into the SFMTA's existing Genetec CCTV system. The NPE's price shall allow for one version upgrade of the cameras beyond software version at time of installation. The NPE shall coordinate with SFMTA to access and update the CCTV central servers.
- The NPE shall provide all raceway, cabling, cameras, and mounting hardware/poles. Cameras shall be mounted in locations where maintenance staff can access without requiring fall protection.
- The NPE shall provide fixed view (unless otherwise identified) CCTV coverage to the following areas at a minimum:
  - ✓ The complete site perimeter shall be covered with cameras installed no greater than 200-feet apart oriented in an overlapping field of view configuration with resolution sufficient for security personnel to determine what is present by class (animal, blowing debris or person).
  - ✓ Entrances and exits into facility site shall be covered. All vehicle and pedestrian access points shall be covered with two dedicated fixed wide angle cameras with a resolution sufficient to uniquely identify an object on the basis of appearance (John, not Tom). One camera will be focused on the individual attempting to access the facility and the other camera will be focused on vehicle license plates.
  - ✓ All exterior building access points including vehicle, and pedestrian, shall be covered from the outside with a resolution sufficient to uniquely identify an object on the basis of appearance.
  - ✓ The loading dock(s) shall be covered.
  - ✓ Parking areas shall each be covered with a minimum of two dedicated fixed cameras with overlapping coverage and shall have resolution sufficient for security personnel to determine what is present by class (animal, blowing debris or person).

- Existing SFMTA camera monitoring stations shall be configured by the NPE.

4.13.10 Fire Alarm System

- The Fire Alarm System shall be furnished and installed in the building conforming to NFPA 72. The system shall be looped, Class A, addressable, intelligent and supervised with a Fire Alarm Control Panel located in the main electrical room. The system shall be programmable, configurable and expandable in the field without the need for special tools, PROM programmers or PC-based programmers. Network communications capability over both a LAN or WAN shall be provided.
- The Supervising Station shall be a third party and shall conform to NFPA 72 as accepted by the AHJ and approved by the SFMTA. Communications Methods between the Supervising Station and the SFMTA in compliance with NFPA 72. The fire alarm control panel shall interface with the BAS system for general fire alarms.
- Photoelectric duct detectors will be provided in Air Handling Units when required by code. In accordance with NFPA 72 and the ADA, combination audible/visual notification devices will be installed throughout the facility to provide notification of an alarm. Visual devices shall be synchronized when more than one device is located in a common field of view. Tamper and flow switches shall be provided for the sprinkler system at the fire risers, valve pits and at the zone valves. Weatherproof exterior speakers shall be provided at exterior gathering locations and entrances to the buildings. An addressable analog fire alarm system with voice alarm shall be provided. A graphical annunciator panel showing the building floor plan depicting the location and status of all fire reporting devices shall be provided at the dedicated entrance to be used by firefighting personnel to respond to emergencies. A remote annunciator for the emergency generator set and elevator shall also be provided.
- A diesel-fueled engine generator set shall provide power for the emergency/standby system loads.
- Pull stations shall be provided at exits and spaced so that there are no more than 100-feet of travel from any point to a pull station.
- Analog smoke detectors which allow the fire alarm system to automatically adjust the detector sensitivity shall be used except where nuisance tripping may occur. In areas where smoke detectors would be unsuitable, such as elevator machine rooms, combination heat and rate-of-rise detectors shall be used. Smoke detectors shall be installed in electrical rooms, telecommunications rooms, elevator lobbies, yard control, under raised computer floors, and other areas of high importance. Smoke detectors shall be provided in the return air ducts of the HVAC equipment to provide for automatic shutdown of these systems when smoke is detected.
- The fire alarm system shall monitor the automatic fire suppression system for water flow, air pressure (if a dry pipe system is installed), and OS&Y valve position. Water flow detection shall initiate a building evacuation alarm. Loss of air pressure and closed valves shall initiate a trouble signal at the main fire alarm panel and at the annunciator.
- The annunciator shall monitor the position of the elevators and indicate if they are operational.
- Control of the building emergency ventilation (if provided) shall be available at the fire alarm panel and at the annunciator.

4.13.11 Communications Server and Workstation Network Interfacing

- Network Interface: Two separate network interface cards (NICs) with 1G bit/sec minimum speed capability each.
- Network Segment Assignment Options:
  - ✓ Define different network segment assignments for each of the NICs.
  - ✓ Define different network segment assignments on the same NIC.

4.13.12 Outdoor Devices

- All electronic devices use in an outdoor environment shall be rated to IP66 level, and withstand operating to three standard deviations of temperature maximum and minimums for this region.
- Rain shields over electronic devices shall be used in most cases of installation for further protection and improved endpoint device function.

4.13.13 Network Management Capabilities

- NPE shall implement all devices to be compatible with Standard Network management health status reporting via SolarWinds Event and Log Monitor software, or otherwise directed by the SFMTA. Devices shall be SNMPv3 compatible.
- NPE shall obtain written direction prior to implementing network connection devices, for instruction herein.

4.14 Wind Study

- Pursuant to the City's wind ordinance (Planning Code Section 148), the Project is required to comply with wind comfort and hazard criteria set forth by the City. Wind analysis has been completed by the SFMTA for the RDC, which is Document 17 (*CEQA Pedestrian Wind Study)* of the Reference Documents. The RDC wind analysis determined that the Project would require design interventions to meet the wind criteria. The Project will be required to complete an updated wind study based on the NPE's proposed massing for the Facility.

4.15 Strategies for Stormwater Handling and Treatment/Pre-Treatment

- Stormwater runoff generated by the Project area must be treated in accordance with the City of San Francisco Stormwater Management Requirements (SMR). The NPE shall create a stormwater management plan meeting the City's SMR that emphasizes use of best management practices (BMPs) on site to mitigate stormwater quality and quantity concerns. Of particular concern, discharge containing oil, sediments, soaps, or other chemicals from the Bus Yard Component shall be captured and means for filtering and treating water prior to discharge shall be incorporated.
- Following the guidance from the City of San Francisco, preference shall be first for rainwater harvesting and reuse, bioretention and infiltration, and permeable pavement to reduce runoff, followed by detention and treatment through lined bioretention or a constructed wetland. The proposed solution shall acknowledge the different sources of runoff on the site and demonstrate an appropriate management plan for each.
- The size of the Project necessitates compliance with San Francisco Article 12C Non-potable Water Ordinance as well. Based on the Project size, a non-potable water system is required on-site to treat and reuse available greywater, rainwater, and foundation drainage for toilet and urinal flushing. The NPE shall propose where such a system shall be housed and identify which uses within the Facility are required to be served by the resulting treated greywater. This necessarily must integrate the stormwater management solutions with on-site treatment and reuse for a comprehensive water management system for the Project.

4.16 Evaluation of Life Cycle Cost Analysis

Decisions impacting resource use, maintenance, and capital cost, such as HVAC system choice, envelope materials and selection, etc., shall be evaluated using a life-cycle cost analysis framework. This approach shall include, at a minimum, the following factors:

- Capital cost
- Energy (electricity, gas, thermal) cost savings
- Water cost savings
- Operations, maintenance, and replacement cost impacts
- Applicable incentives such as tax credits and depreciation benefits
- Space savings

For decisions impacting the Bus Yard Component, a life-cycle cost analysis study shall be performed. The period of evaluation shall be assumed to be no less than 30 years and shall be reviewed and confirmed with the City at the outset of the PDA phase. Life-cycle cost analysis evaluation financial parameters shall be determined by the NPE and shall be reviewed and confirmed with the City at the outset of the PDA phase. Financial parameters shall include discount rate, energy cost escalation, water cost escalation, labor and materials escalation, and applicable tax rate (if depreciation is evaluated for a measure) at a minimum. Decisions shall prioritize life-cycle cost benefit as a key driver of selection.

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

This document presents the Requirements for Bus Yard Component Space Modules for the proposed Potrero Yard, by providing both micro and macro level design requirements. The Requirements for Bus Yard Component Space Modules format found in this section consists of Functional Area Modules. The Functional Area Module represents a detailed description of specific design issues for each of the areas listed in Section 2 the Space Needs Program. Reference the Space Needs Program (Section 2.4) for specific data. All Modules and related equipment are for representation purposes only and do not necessarily depict strict design conformance.

5.0 MODULES

Each of the building space modules contains information regarding the function of the space, affinities, critical dimension (if any), equipment, furnishings, and finishes related to this operation. Technical considerations for architectural, structural, mechanical, plumbing, and electrical systems are delineated on the facing page. The space is graphically illustrated. Specific layouts of each area will be developed during detailed design. Note that the equipment and furnishings listed are not intended to be all-inclusive. Spaces are separated into groups based upon function.

Not all spaces listed in the Space Needs Program have a room data sheet including Custodial, Telecommunication Rooms, and Restrooms. This is because these spaces are code- or facility-specific, or are continually changing.

The following module colors are used in the room data sheets that follow as well as the Reference Design Concept plan sheets.

OFFICE MODULES

PARKING

BAYS AND SHOPS

FARE BOX AND CLIPPER CARD READER REPAIR SHOP

SERVICE AND CLEAN

PARTS

MAINTENANCE - ADMINISTRATION

OPERATIONS - ADMINISTRATION

TRANSIT SERVICES

SHARED

TRAINING

5.1 Sustainable Design

There are several sustainable design opportunities that can be implemented at Potrero Yard. The Sustainable Design section outlines potential sustainable design opportunities appropriate for this type of facility. These options are broken into Site Features, Building Design and Materials, Mechanical Systems, Electrical Systems, and Plumbing Systems. The NPE shall also refer to Department of Building Inspection Form GS6: San Francisco Green Building Submittal Form for Municipal Projects for guidance on required measures.

5.2 Utilities Design

The utilities for the maintenance facility are numerous and require close attention to detail. The coordination of the HVAC, electrical, and plumbing systems are critical to the proper function of the Shop and the heart of the facility. Providing an organized installation and design of these systems will enhance future system maintenance.

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

5.3 Creating Sustainable Facilities

Sustainability is an essential and fundamental component of the facility. The key sustainability issues that shall be explored in the planning and development of the facility include, but are not limited to, key points included in this section.

5.3.1 Balance Between Economic and Environmental Needs

To balance both economic and environmental needs, the facility design shall maximize employee health, safety, and operation efficiencies. This priority shall be considered at all stages of development of the facility.

5.3.2 Efficient Use of Resource Materials

Material resources are valuable, and efficient use shall be encouraged in the development and operations of the facility. This can be implemented with reusable, recyclable, and biodegradable materials, as well as mandating the use of products that are extracted, harvested, and manufactured locally.

5.3.3 Efficient Use of Water Resources

The facility plan shall encourage efficient use of water resources through resourceful planning. Examples could include implementing an effective storm water management plan and using environmentally compliant wash bays to service all vehicles. Reclaimed water will be used for irrigation at new City facilities, per the San Francisco Green Building Code Amendments and GS6 Form for municipal projects. Low flow plumbing fixtures and sub-metering are also required.

5.3.4 Energy Efficiency/Renewable Energy Systems

Renewable energy sources like solar, wind, and daylight harvesting shall be utilized, as well as exploring and promoting opportunities to increase energy savings at the facility through the use of high-performance systems.

5.3.5 Construction Methods

Methods of construction of the facility play a significant role in sustaining the environment. Minimizing transportation costs by utilizing local resources and recycling procedures during construction will conserve energy and minimize pollution.

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

5.4 LEED Certifications

LEED is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

Each rating system groups requirements that address the unique needs of building and project types on their path towards LEED certification. Once a project team chooses a rating system, they'll use the appropriate credits to guide design and operational decisions.

SFMTA guidelines are to meet LEED Gold Certification, which shall include achieving a minimum of 12 points under LEED credit EAc2 Optimize Energy Performance and 3 points under LEED credit EAc5 Renewable Energy v4.1.

- Platinum 80+ points
- Gold 60 to 79 points
- Silver 50 to 59 points
- Certified 40 to 49 points

5.5 Architectural Systems

Design and materials that facilitate sustainability include, but are not limited to:

- Use of durable building materials
- Natural light
  - ✓ Skylights
  - ✓ Clerestory
  - ✓ Roof monitors
  - ✓ Windows in bay doors
- Operable windows for natural ventilation
- Low Volatile Organic Compound (VOC) finish materials
- Use of local building products
- Use of recycled materials
- High R-Value roof and wall insulation
- Insulated bay doors
- Low U-value windows and skylights



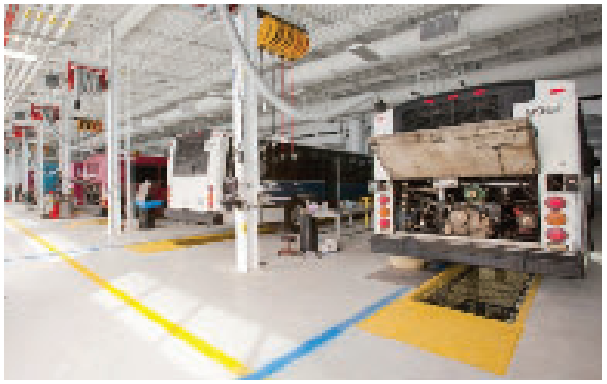
Translucent clerestory windows daylighting



Insulated translucent sectional door



Solar tube daylighting



Light reflective floor

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

5.6 Mechanical Systems

Mechanical systems that facilitate sustainability include, but are not limited to:

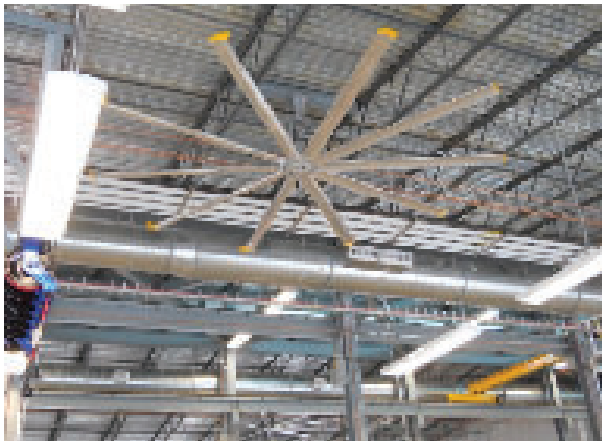
- Radiant floor slab heating (example)
- Variable air volume air handling units
- Variable frequency drive motors
- High efficiency motors for air handling units and DX compressors
- Economizers for free cooling with 100 percent outside air at air handling units
- Demand control ventilation with CO2 and occupancy sensors for reducing ventilation requirements during unoccupied periods

5.7 Additional Cost Alternatives

- Radiant floor slab heating (example)
- Solar Thermal heating for domestic water heater
- High efficiency boiler for hydronic heating loop
- Ground source heat pumps (geothermal)
- Destratification fans

Renewable energy production:

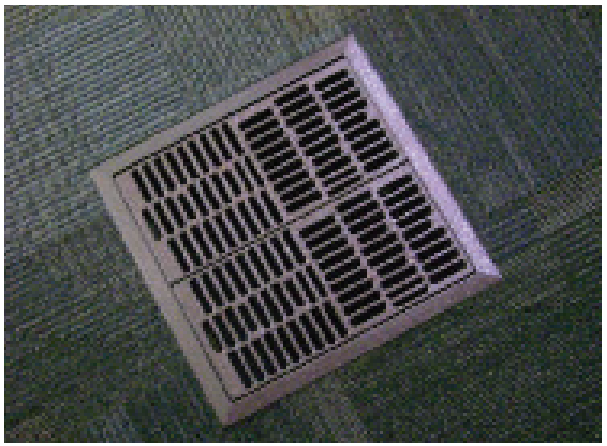
- Photovoltaic
- Wind



Destratification fan



Heat recovery piping



Underfloor air distribution vent



Radiant floor system

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

5.8 Electrical Systems

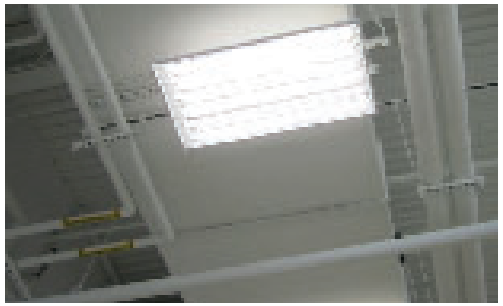
Electrical systems that facilitate sustainability include, but are not limited to:

- Maximize lighting controls with daylight harvesting and occupancy and vacancy sensors
- LED lighting systems
- Task lighting in Repair Bays
- Efficient process equipment

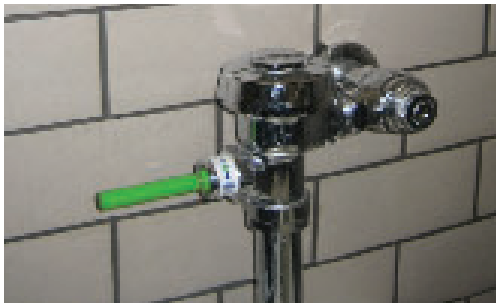
5.9 Plumbing Systems

Plumbing systems that facilitate sustainability include, but are not limited to:

- “We fix” program for new plumbing fixtures
- Rainwater harvesting for irrigation
- Vehicle wash water reclaim
- Low flow plumbing fixtures
- Sensor operated faucets
- Grey water (purple pipe) for water closets
- Tankless water heaters
- Reclaimed water will be used for landscaping at new City facilities, per the San Francisco Green Building Code Amendments and GS6 Form for municipal projects



LED lighting



Dual flush toilet



Wash water reclamation system



Low-flow plumbing fixtures



Rainwater harvesting

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

5.10 Architectural/Structural Systems Coordination

- Coordinate routing, support systems, and clearances for mechanical ductwork, plumbing piping and electrical conduit
- Routing shall run above forklift and walk aisles
- Group wherever possible
- Route main ventilation ductwork above walk/ forklift aisles
- Use mezzanines for mechanical units

5.10.1 Mechanical Systems Coordination

- Route main ventilation ductwork above walk/ forklift aisles
- Use mezzanines for mechanical units

5.10.2 Plumbing Systems Coordination

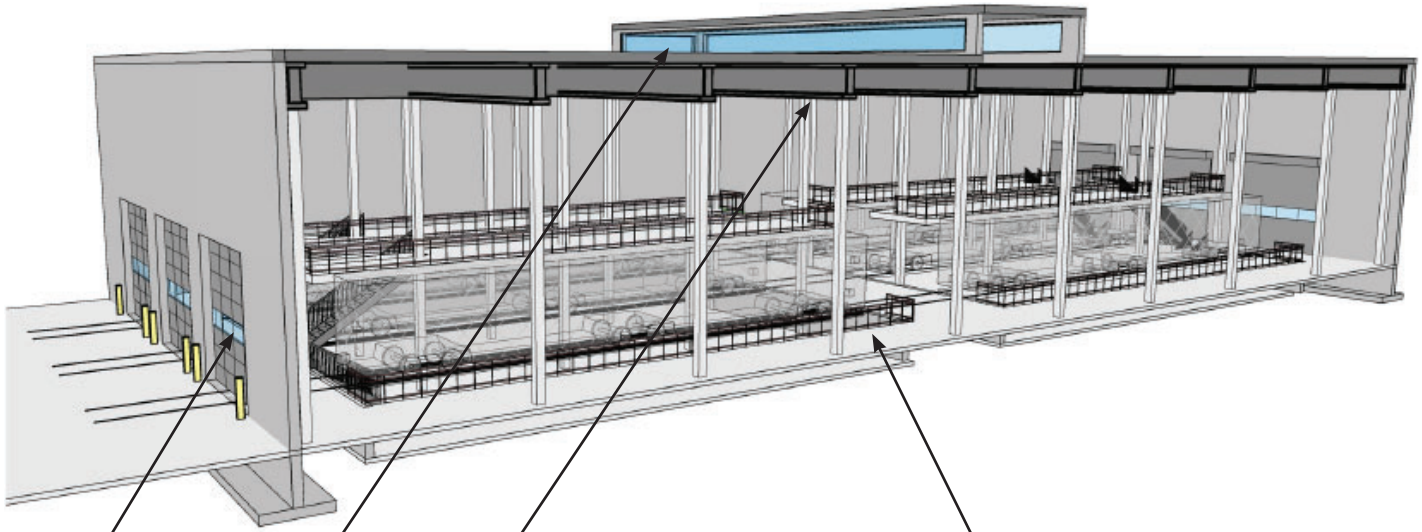
- Route water, sanitary, vent, storm, and service equipment piping above ground and above walk/forklift aisles

5.10.3 Electrical Systems Coordination

- Route main conduit runs above ground and above walk/forklift aisles.
- Communication systems and cable trays shall be coordinated with other building systems to allow for installation, removal of cables in the future. All communications conduits and cable trays shall be routed above ground.
- Route branch circuits, equipment feeds above ground to facilitate future renovations

SECTION 5 - REQUIREMENTS FOR BUS YARD COMPONENT SPACE MODULES

Sustainable Strategies

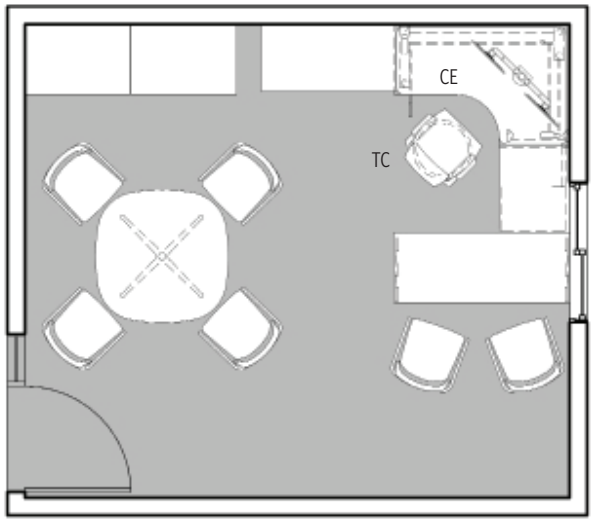


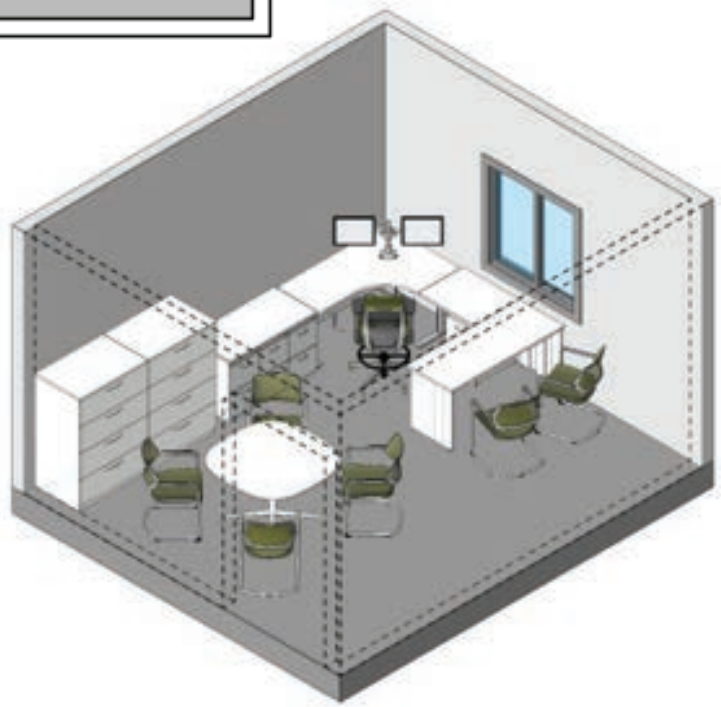
- Daylighting through skylights/clerestories/roof/ monitors/windows in bay doors
- Low VOC finishes
- Operable windows/natural ventilation
- Use of recycled content of materials
- Destratification fans in high bay areas

- Radiant floor slab heating (example)
- Air quality sensors for exhaust fan controls
- Use of durable, long-lasting building materials
- Occupancy sensors
- Use of local building products
- Renewable energy sources such as solar and geothermal

SECTION 5.1: OFFICE MODULES

PRIVATE OFFICE - 224 SF





FUNCTION

Private office for completing work tasks and holding small meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

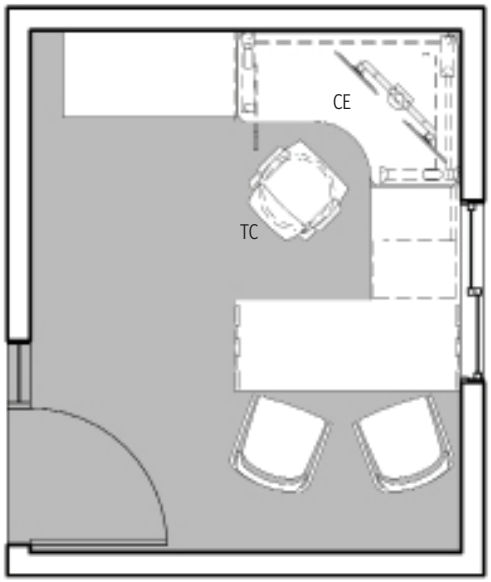
EQUIPMENT/FURNISHINGS

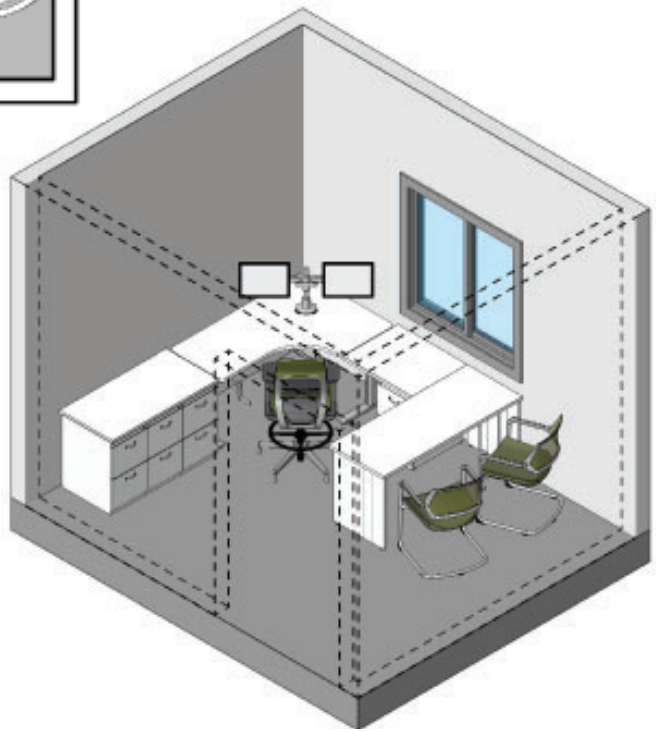
- Task chair
- TMC 60” by 30” typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files
- Table and Chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry
  - ✓ Ceiling: Acoustical ceiling tile
  - ✓ Doors:
    - Single leaf 3’-0” door with sidelight and lockable lever set hardware
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (as required)

PRIVATE OFFICE - 120 SF





FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

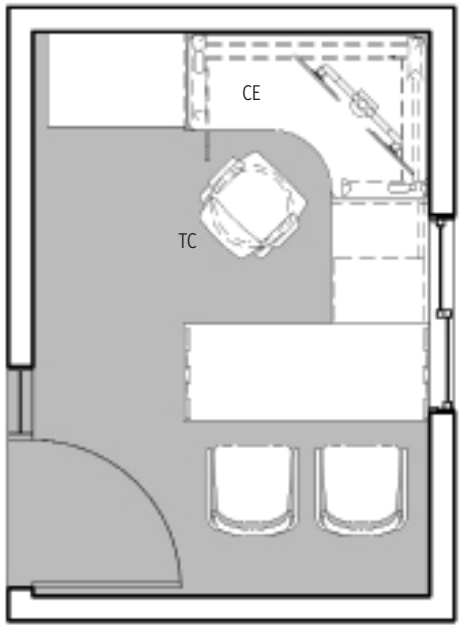
EQUIPMENT/FURNISHINGS

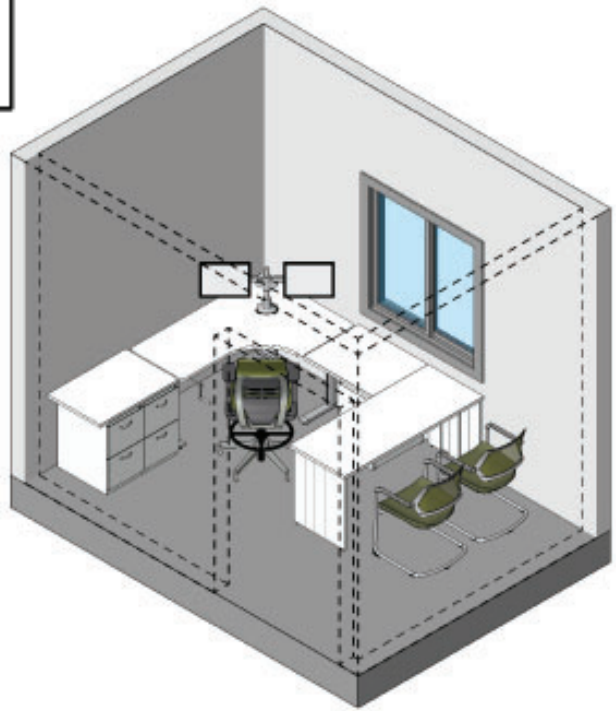
- Task chair
- TMC 60" by 30" typical sit/ stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files
- Guest chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry
  - ✓ Ceiling: Acoustical ceiling tile
  - ✓ Doors:
    - Single leaf 3'-0" door with sidelight and lockable lever set hardware
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (as required).

PRIVATE OFFICE - 100 SF





FUNCTION

Private office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

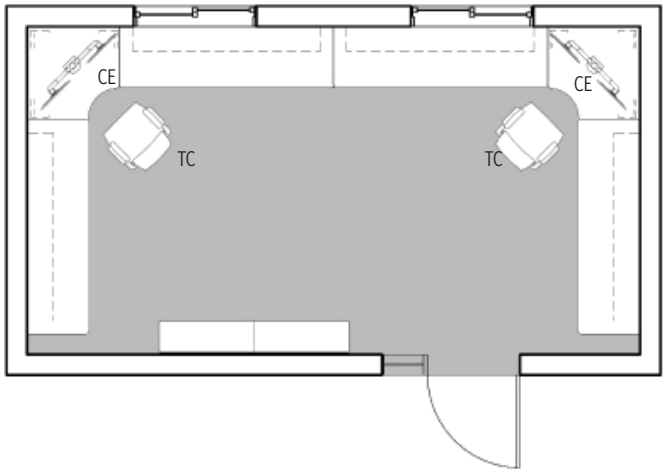
EQUIPMENT/FURNISHINGS

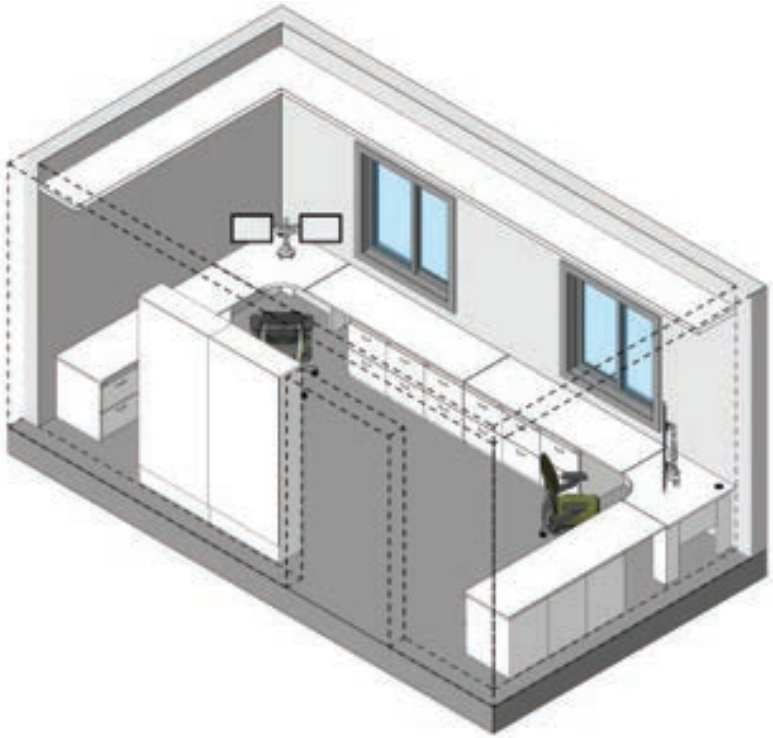
- Task chair
- TMC 60" by 30" typical sit/ stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files
- Guest chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry
  - ✓ Ceiling: Acoustical ceiling tile
  - ✓ Doors:
    - Single leaf 3'-0" door with sidelight and lockable lever set hardware
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (as required).

SHARED OFFICE





FUNCTION

Shared office for completing work tasks and holding one on one meetings.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

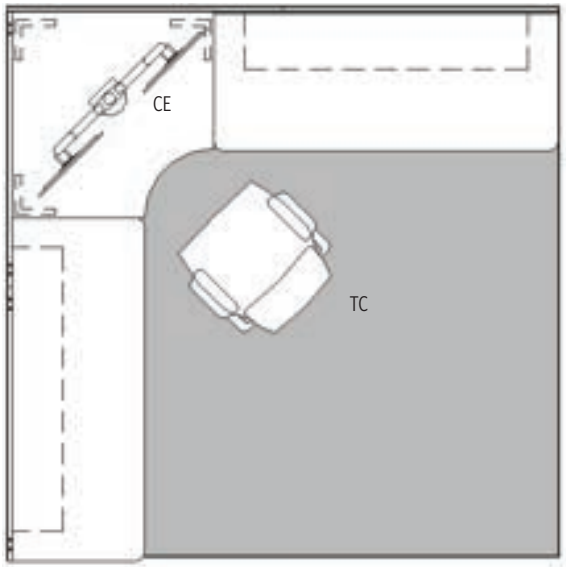
EQUIPMENT/FURNISHINGS

- Task chair
- TMC 60” by 30” typical sit/ stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files
- Guest chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry
  - ✓ Ceiling: Acoustical ceiling tile
  - ✓ Doors:
    - Single leaf 3’-0” door with sidelight and lockable lever set hardware
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (as required).

WORKSTATION - 64 SF





FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

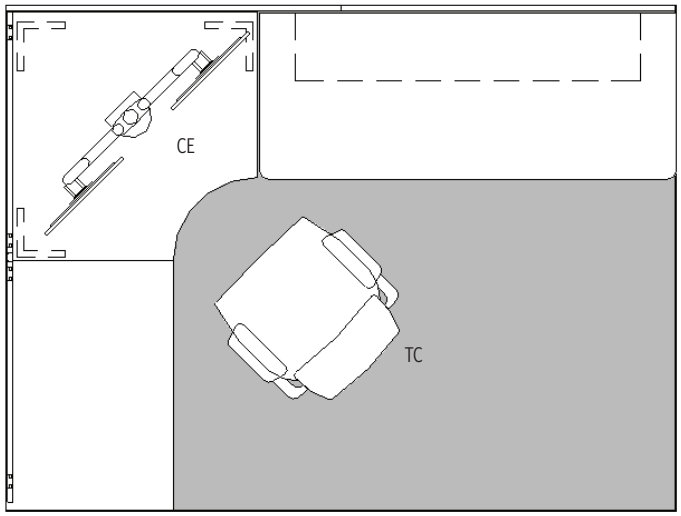
EQUIPMENT/FURNISHINGS

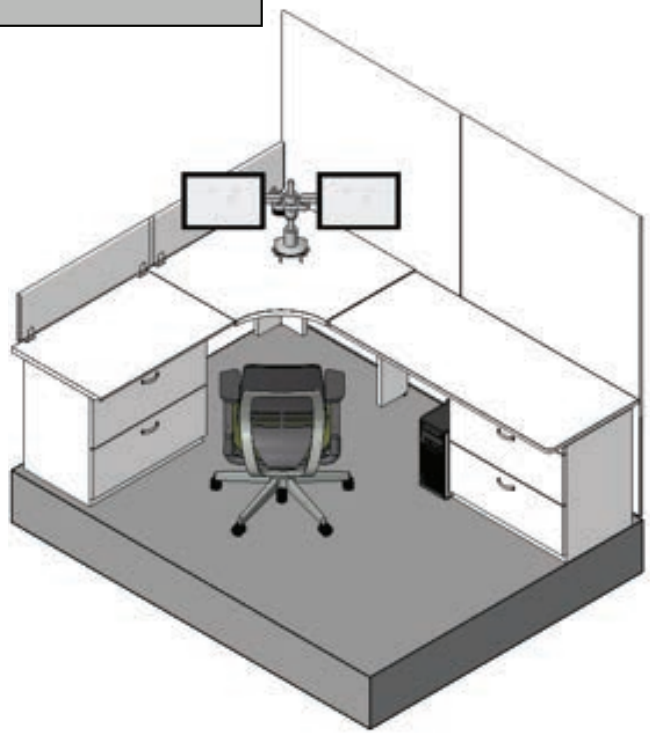
- Task chair
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Ceiling: Acoustical ceiling tile
- Daylighting: Access to natural light
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at workstation
  - ✓ Provide one data outlet with four data ports at workstation
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation (35 fc average)
  - ✓ Verify feasibility of providing individual control of selected luminaires
  - ✓ Task lighting (as required).

WORKSTATION - 48 SF





FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

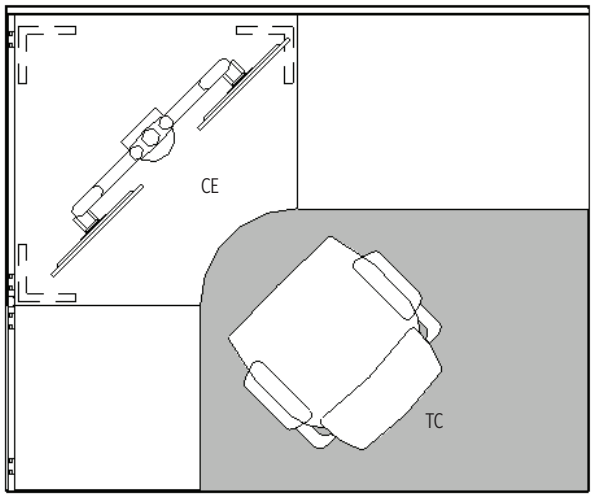
EQUIPMENT/FURNISHINGS

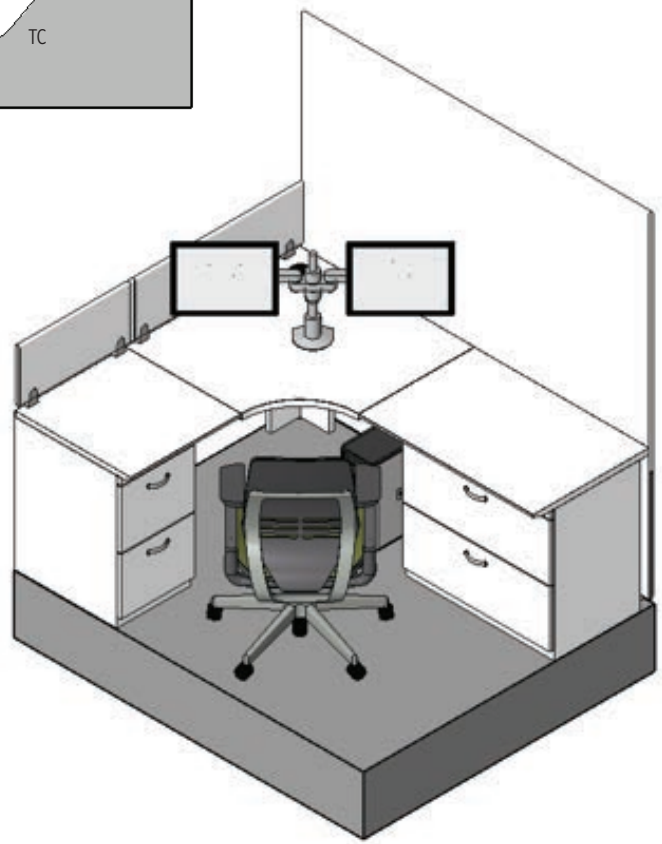
- Task chair
- TMC 60" by 30" typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Ceiling: Acoustical ceiling tile
- Daylighting: Access to natural light
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at workstation
  - ✓ Provide one data outlet with four data ports at workstation
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation (35 fc average)
  - ✓ Verify feasibility of providing individual control of selected luminaires
  - ✓ Task lighting (as required).

WORKSTATION - 30 SF AND 36 SF





FUNCTION

Open office workstation to complete work tasks.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general modules

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

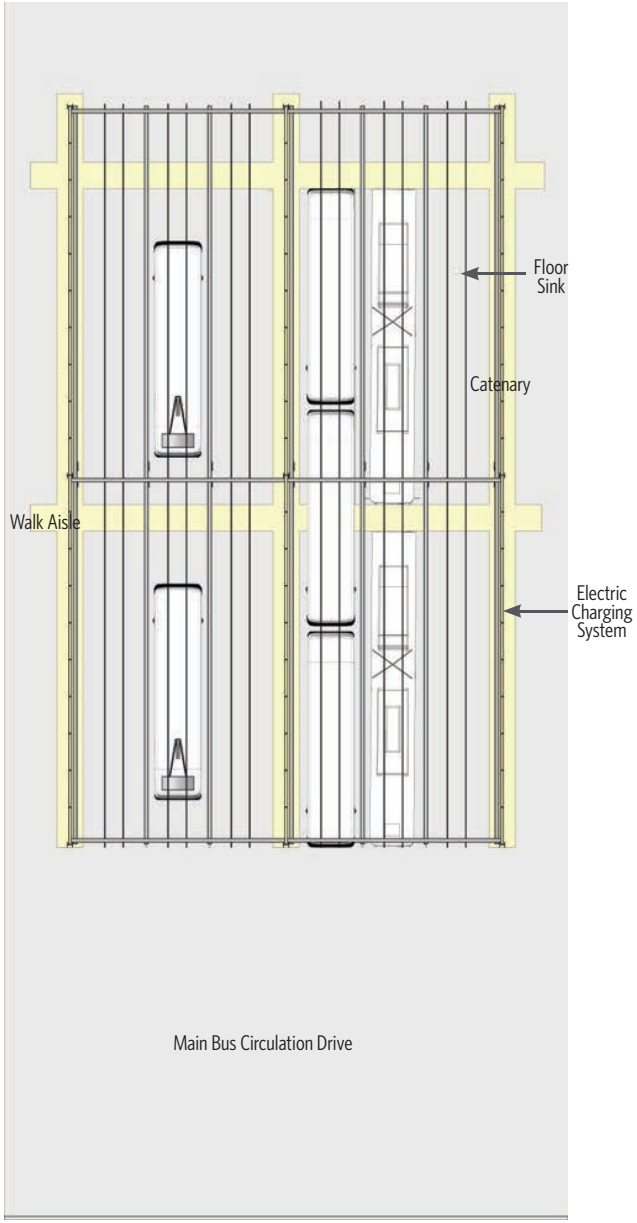
- Task chair
- TMC 60” by 30” typical sit/stand workstation
- Two pedestal cabinets per station. One two-drawers for files, and one three-drawers for personal items and files

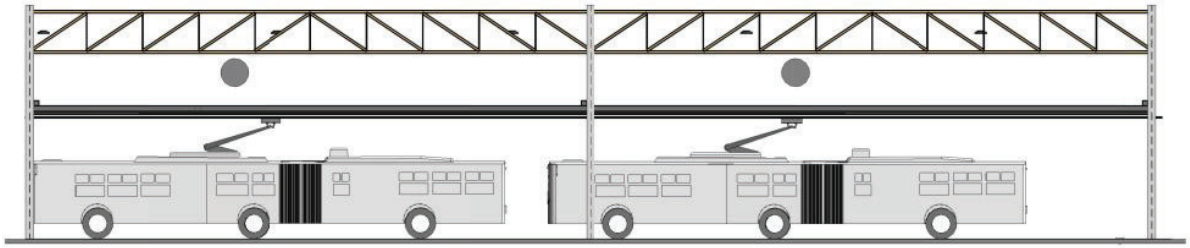
DESIGN FEATURES

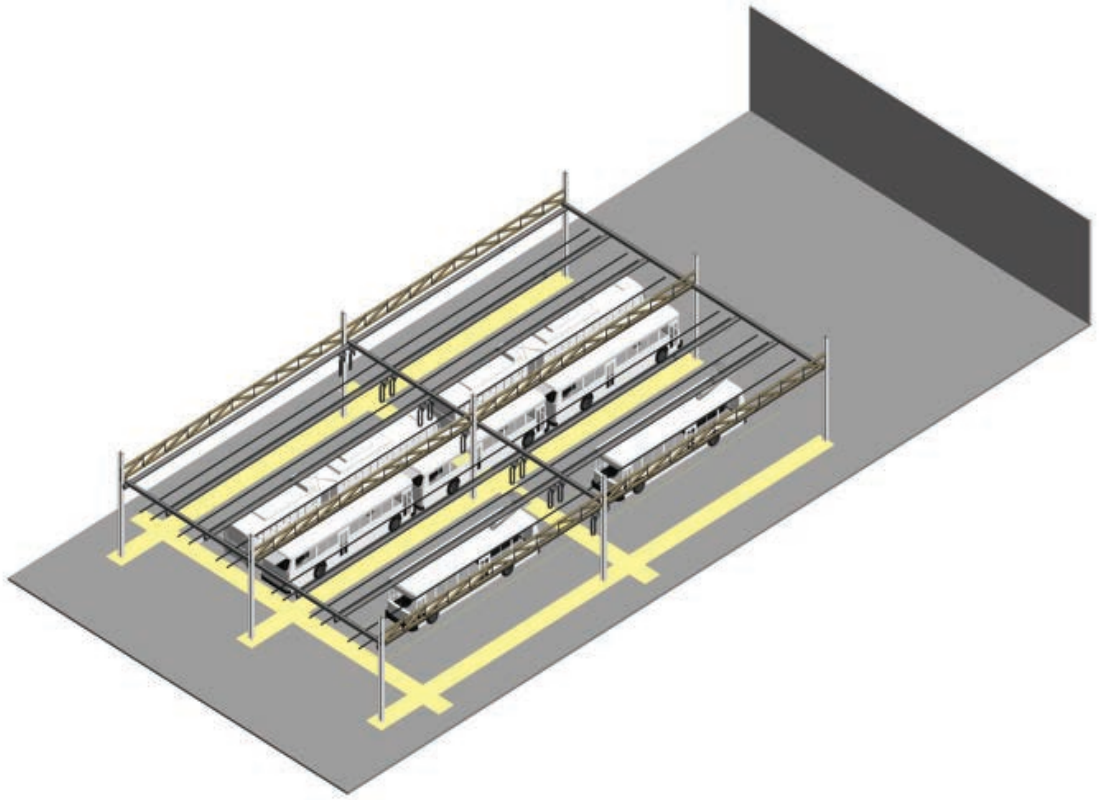
- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for operation and administration areas. Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas
  - ✓ Ceiling: Acoustical ceiling tile
- Daylighting: Access to natural light
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ Provide general purpose duplex receptacle and a quad receptacle at workstation
  - ✓ Provide one data outlet with four data ports at workstation
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation (35 fc average)
  - ✓ Verify feasibility of providing individual control of selected luminaires.
  - ✓ Task lighting (as required).

SECTION 5.2: PARKING

40’ AND 60’ BUS PARKING







40’ AND 60’ BUS PARKING

FUNCTION

Dedicated area to park 40’ and 60’ trolleys.

RELATIONSHIP TO OTHER AREAS

- Access to Service Positions
- Access to Bus Washer

CRITICAL DIMENSIONS

- 19’-0” preferred vertical clearance to structure and fixtures. This vertical clearance height may be reduced to a minimum of 17’ only if all fixtures, building systems, OCS, ETB pole systems, structure, and all other Technical Requirements are fully accommodated.
- 12’-0” wide x 65’-0” long per space (60’ bus)
- 12’-0” wide x 45’-0” long per space (40’ bus)
- Ramps:
  - ✓ 15’-0” wide ramp (minimum)
  - ✓ 14’-0” vertical clearance to structure and fixtures
  - ✓ Maximum 10 percent slope with 40’ long 5 percent transition ramps at top and bottom

EQUIPMENT/FURNISHINGS

- OCS: Wire in parking positions for trolley buses
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.

DESIGN FEATURES

- Buses parking in each aisle of every bus parking level must be organized by buses of the same length. Further, each bus parking aisle shall be designated for its respective bus length so that the charging infrastructure can be efficiently accommodated.
- Pulling out from the facility needs to be further evaluated in final design because of the affects of going on wire could have on backups or delays at pullout. A couple of options are:
  - ✓ Having wires connected to the street wires from inside the building so that going on wire would happen in a parking que lane at the exit of the facility.
  - ✓ Have the buses go on wire at different locations on the street depending on their route. One block after pullout, another 5 blocks after pullout, and so on.

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finish, concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Exterior of building overhead doors: High-lifting sectional, steel, insulated, size per Fleet 16’-0” wide by 16’-0” with view panels, automatic operator, detection loops
  - ✓ Bollards on exterior at jambs of overhead door (two each)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment

MECHANICAL CONSIDERATIONS

- Ventilation:
  - ✓ 1.5 CFM exhaust per square foot of floor area
  - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18” above floor level accordance with NFPA 30A and ASHRAE 62.1

PLUMBING CONSIDERATIONS

- Trench drain at overhead door with flush, removable grate covers, with sediment basket upstream of trap, to central sediment and oil interceptor.
- 3/4” water hose bibb with standard faucet at rear of bay 2’-0” AFF (one per three bays)
- Compressed air:
  - ✓ 2’-0” compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge and quick disconnects on 4’-0” AFF (one per four parking stalls)
  - ✓ Provide 3/8” and 1/2” disconnects at locations to be determined during detailed design
  - ✓ As required by equipment
- Additional plumbing connections (water, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles on every column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation (5 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
  - ✓ Luminaires shall be placed between every row of buses to allow illumination between buses
- Communications: Paging/intercom system speakers with 100 percent coverage of all parking stalls

SECTION 5.3:BAYS AND SHOPS

GENERAL NOTES

- Provide one Preventive Maintenance Bay for every 50 buses
- All Maintenance Bays are designed for 40’ and 60’ buses
- The above are all industry standards. Reference Appendix C: Equipment Manual for industrial shop equipment specified per space.

GENERAL OFFICE MODULES: OFFICE AREAS

RUNNING REPAIR - SUPERVISOR

- Reference **Office Module Workstation - 64 sf**
- View of Repair Bays and Shops
- Adjacent to Preventive Maintenance Supervisor

CONTROL ROOM CLERK

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Supervisors

FLOOR SUPERVISOR

- Reference **Office Module Workstation - 64 sf**
- View of Repair Bays and Shops

PREVENTIVE MAINTENANCE SUPERVISOR

- Reference **Office Module Workstation - 64 sf**
- View of Repair Bays and Shops
- Adjacent to Running Repair Supervisor

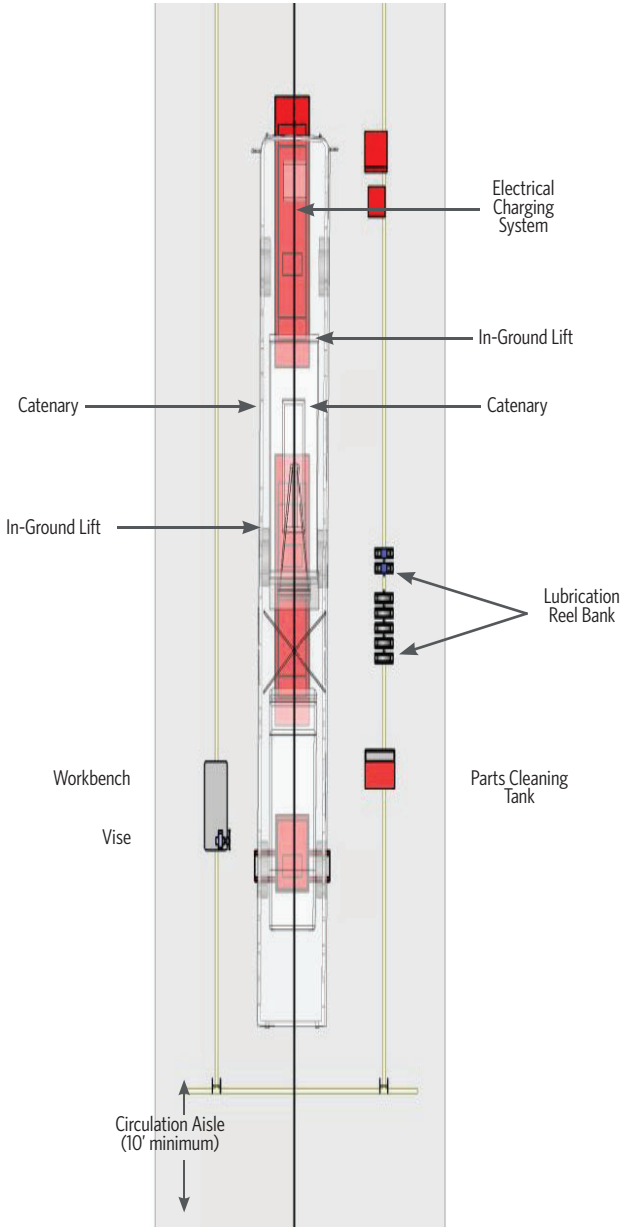
ELECTRONIC SUPERVISOR

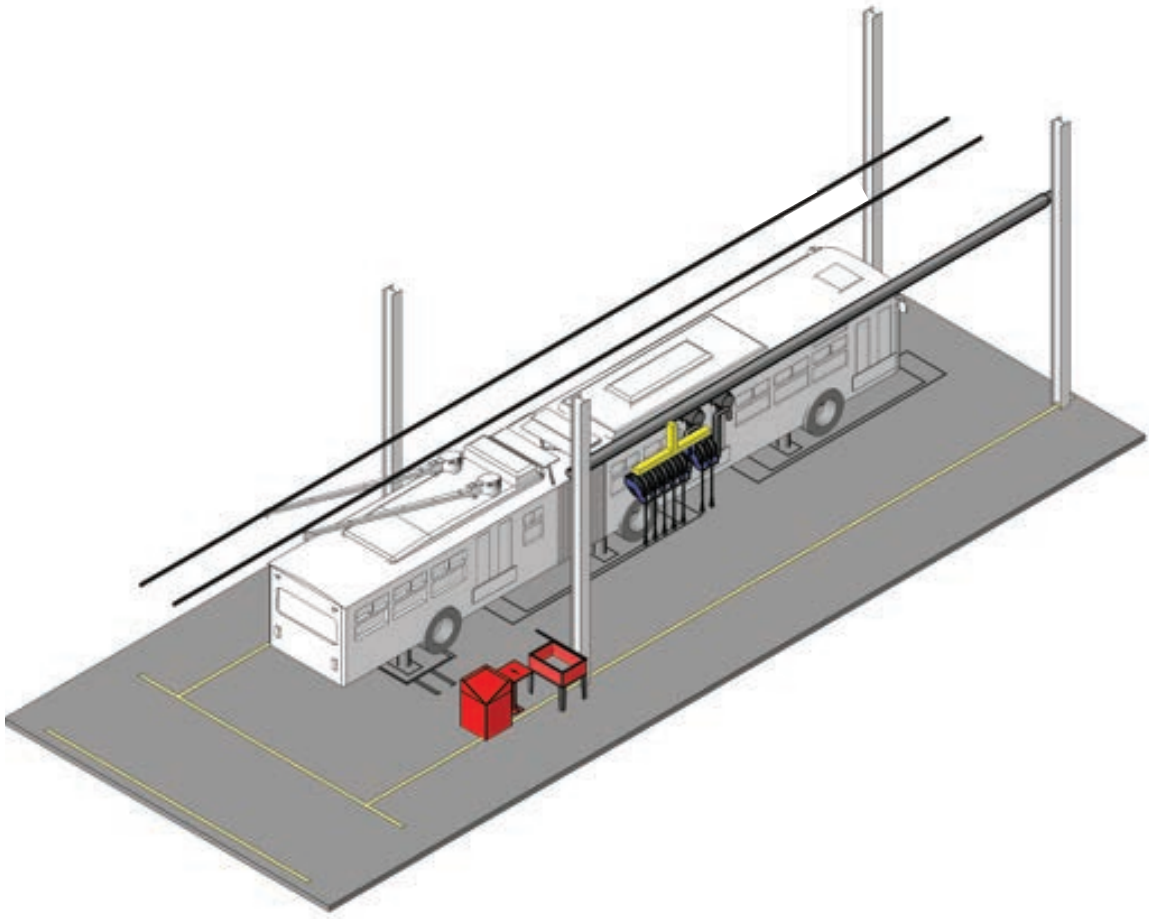
- Reference **Office Module Workstation - 64 sf**
- View of Repair Bays and Shops
- Adjacent to Supervisors
- Access to Electronic Bench Shop

ELECTRONIC SHOP WORKSTATIONS

- Reference **Office Module Workstation - 30 sf**
- Adjacent to Electronic Bench Shop

60' BUS REPAIR BAY





60' BUS REPAIR BAY

FUNCTION

Bay space to perform general repair and maintenance on trolleys and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- OCS: Wire in positions for trolley buses
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.

DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- Roof Level Work Platform (RLWP) with fall protection

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
  - ✓ 1.5 CFM exhaust per square foot of floor area
  - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

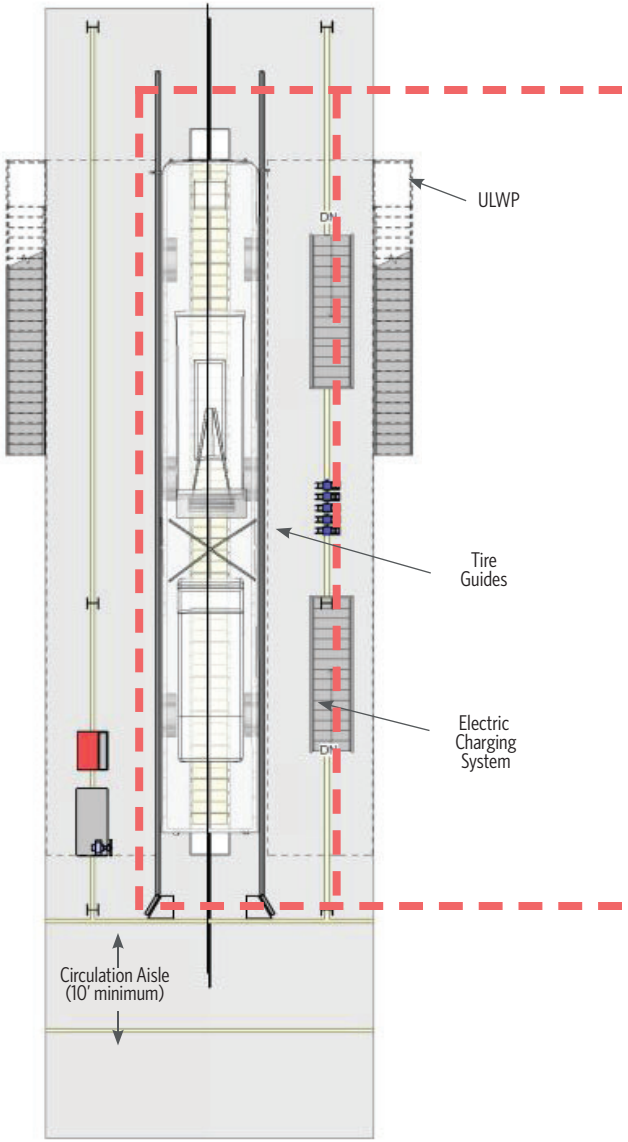
PLUMBING CONSIDERATIONS

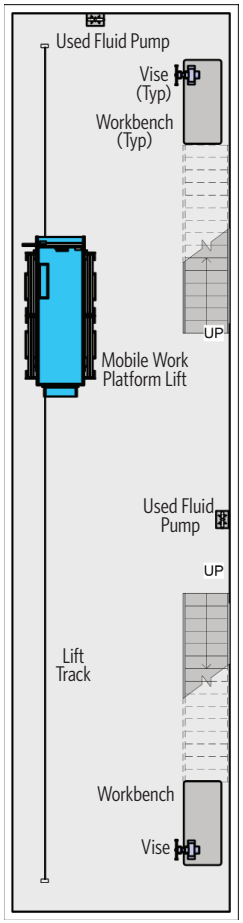
- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Additional plumbing connections (water, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

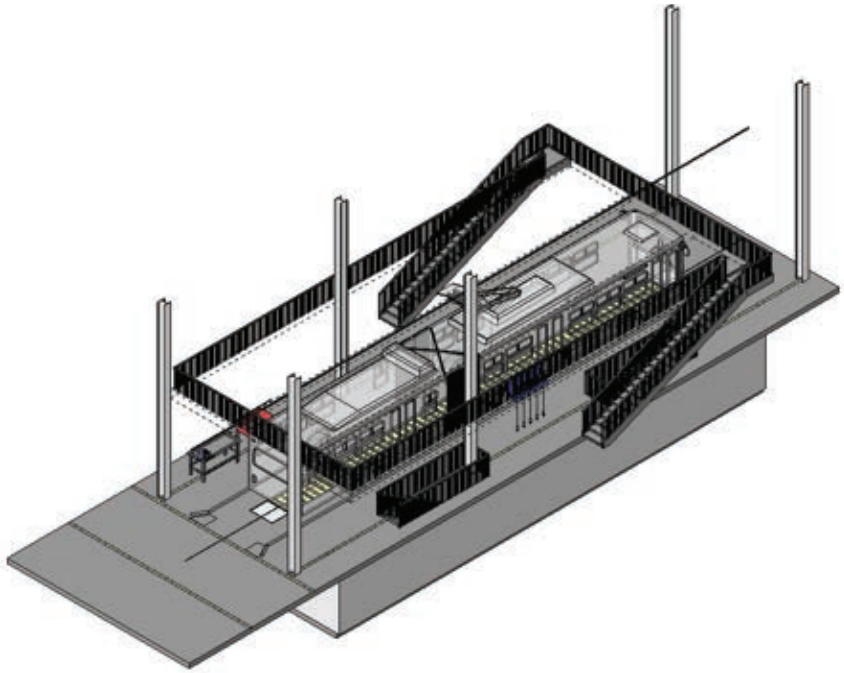
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each bay

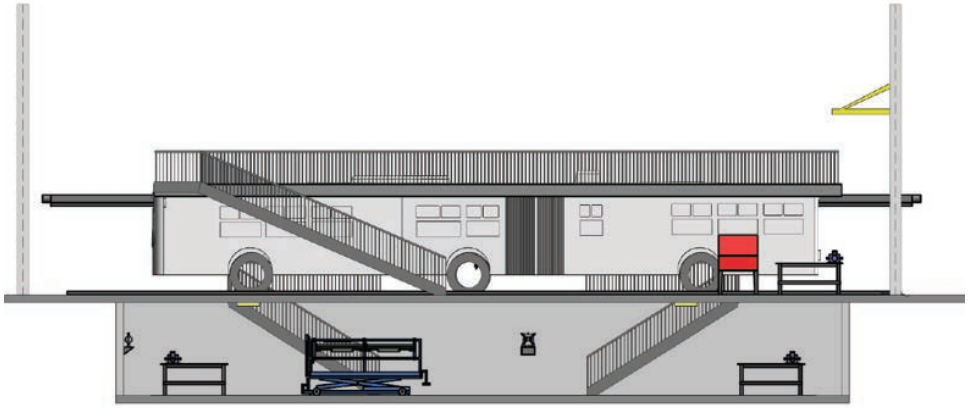
60' BUS PREVENTIVE MAINTENANCE





LLWA





60' BUS PREVENTIVE MAINTENANCE

FUNCTION

Bay space to perform preventive maintenance such as inspections, and underfloor component replacement or repair on trolleys, and future battery electric buses with a Lower Level Work Area (LLWA). As well as, roof top component repair or replacement with an Upper Level Work Platform (ULWP) are performed in this area as well.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long
- LLWA: 60'-0" long by 10'-0" wide by 8'-6" depth (min.)
- 25'-0" (min) vertical clearance within the bay where bus is in position.

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.
- Lockout/tag out system required when bus is in position
- No OCS: Wire in position for trolley buses.

DESIGN FEATURES

- Forklift access
- Natural daylighting desired
- LLWA
- ULWP
- Tire guides are required to assist with the maneuvering into the bay
- Lockout/tag out system for access to ULWP
- Trolley pole system inspection and maintenance to be conducted in all PM Bays. Reference diagram in section 3.6 OCS-Trolley for height diagram.

- Multiple PM bays should be located adjacent to one another and the LLWA for each should be contiguous from one to another, to allow for uninhibited passage from one LLWA to the next LLWA across the entire length of the LLWA.

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access
- LLWA opening to support bridge jacks

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
  - ✓ 1.5 CFM exhaust per square foot exhaust
  - ✓ Return openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)
- LLWA:
  - ✓ Minimum 1 CFM per square foot of LLWA floor area at all times the building is occupied or when vehicles are parked over these areas.
  - ✓ Exhaust shall be taken from a point within 1'-0" of the floor

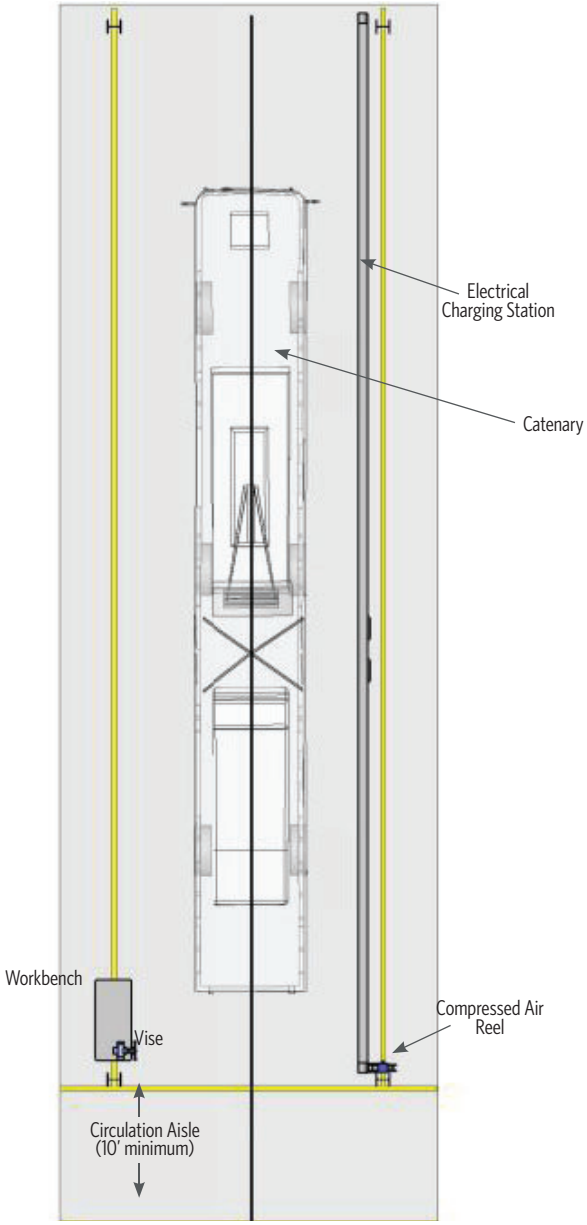
PLUMBING CONSIDERATIONS

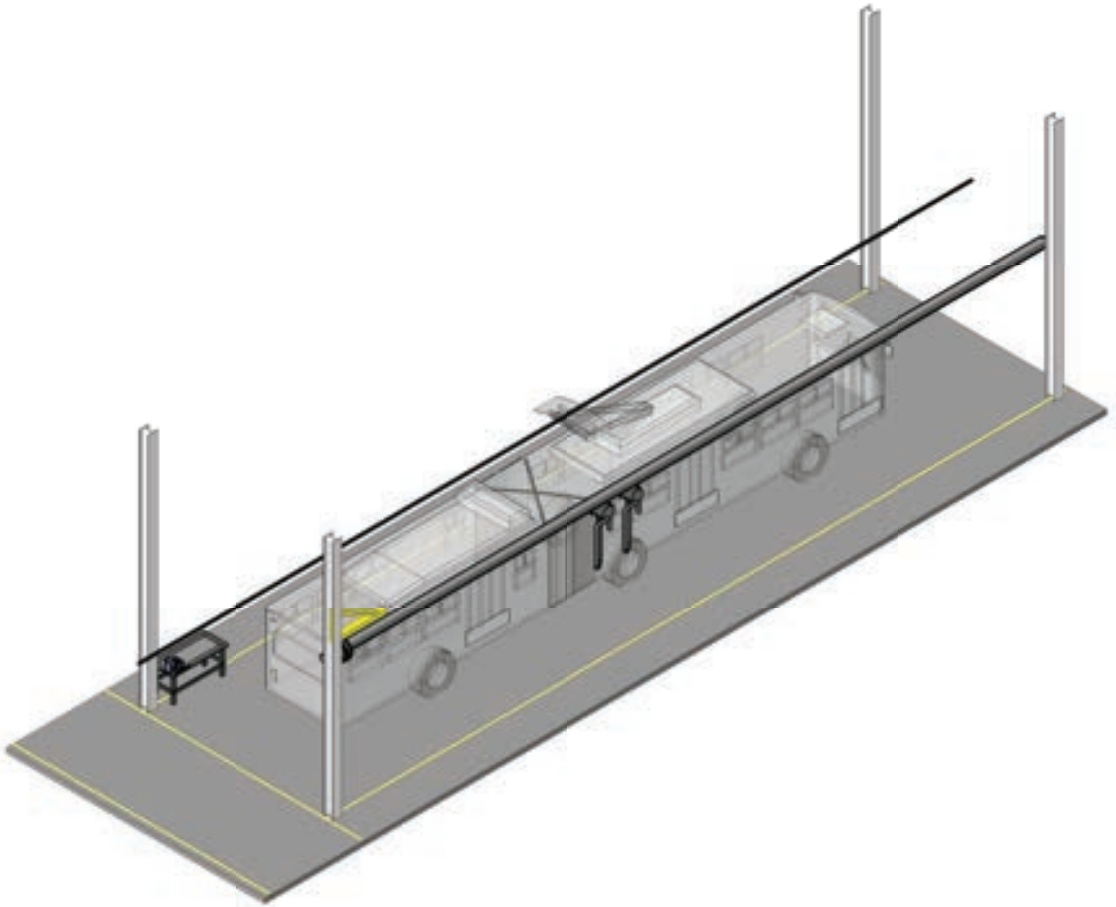
- 3/4" water hose bibb with standard faucet at rear of bay on main and LLWA level, 2'-0" AFF (one per bay)
- Compressed air:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ Provide on Main Level, ULWP, and LLWA
  - ✓ As required by equipment
- Additional plumbing connections (water, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
  - ✓ Explosion proof LED lighting in pit
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each bay

60’ BUS TIRE BAY





60' BUS TIRE BAY

FUNCTION

Bay space to perform tire replacement and repair on trolleys and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Access to Common Work Area, Parts Storage, Portable Equipment Storage Areas, and Maintenance Office areas
- Adjacent to Tire Shop

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures
- 20'-0" wide by 75'-0" long

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.
- OCS: Wire in positions for trolley buses

DESIGN FEATURES

- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
  - ✓ 1.5 CFM exhaust per square foot of floor area
  - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18" above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

PLUMBING CONSIDERATIONS

- Lubrication reel bank (shared one per two bays)
- 3/4" water hose bibb with standard faucet at rear of bay 2'-0" AFF (one per three bays)
- Compressed air:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Additional plumbing connections (water, drainage, etc.) as required by equipment

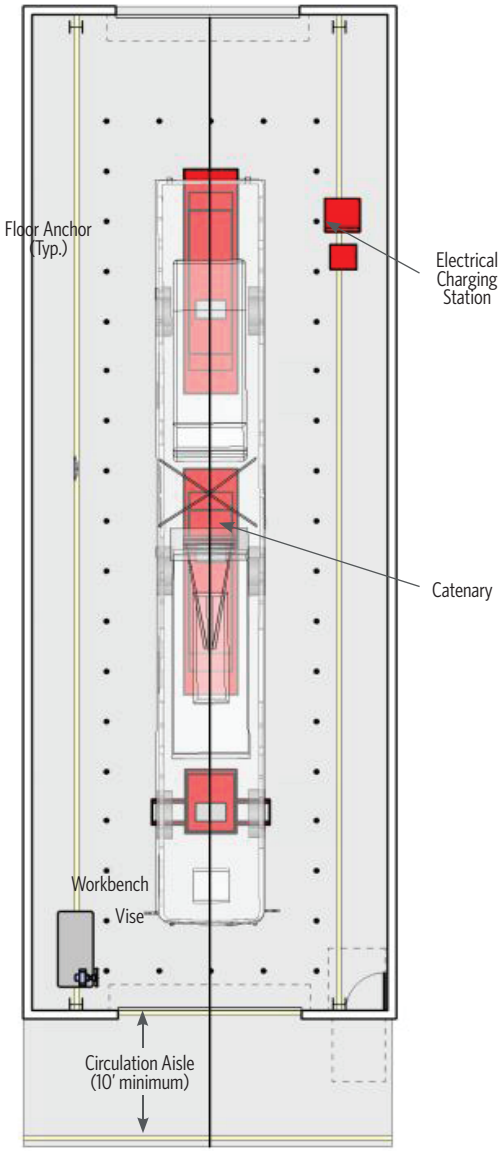
ELECTRICAL CONSIDERATIONS

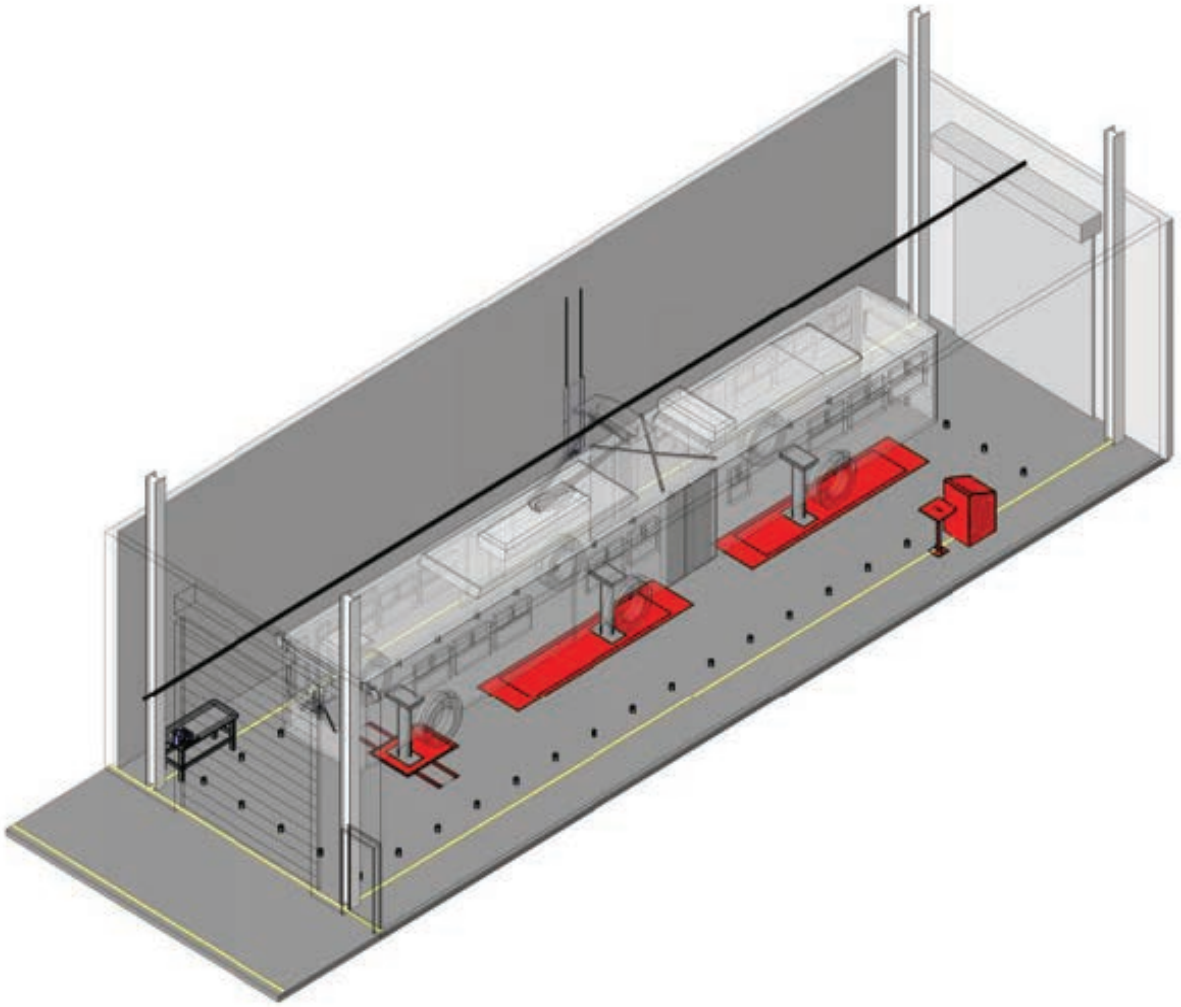
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (25 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each bay

FIRE SUPPRESSION CONSIDERATIONS

The fire protection and pyrotechnics experts on the detailed design team will be responsible for devising a robust fire protection system for the tire bay and tire shop/storage areas that minimizes risk to the Yard and any joint development above. Review and recommendations provided by the experts will include, but not be limited to, the location, ventilation, and fire suppression systems for Potrero Yard's tire facilities.

60’ BUS MINOR BODY REPAIR





60’ BUS MINOR BODY REPAIR

FUNCTION

Perform minor replacement and repair of glass panel and other body parts of the trolley and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Minor Body Shop

CRITICAL DIMENSIONS

- 19’-0” vertical clearance to structure and fixtures
- 20’-0” wide by 75’-0” long

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.
- OCS: Wire in positions for trolley buses

DESIGN FEATURES

- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Overhead door: High-lifting sectional, steel, insulated, 14’-0” by 14’-0” with view panels, automatic operator, interior and exterior push button controls

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- As required by equipment
- Ventilation:
  - ✓ 1.5 CFM exhaust per square foot of floor area
  - ✓ Return air openings in areas used for repair or servicing vehicles shall not be less than 18” above floor level accordance with NFPA 30A and ASHRAE 62.1
- Heating set point: 65 degrees Fahrenheit
- In-floor radiant heat (if desired)

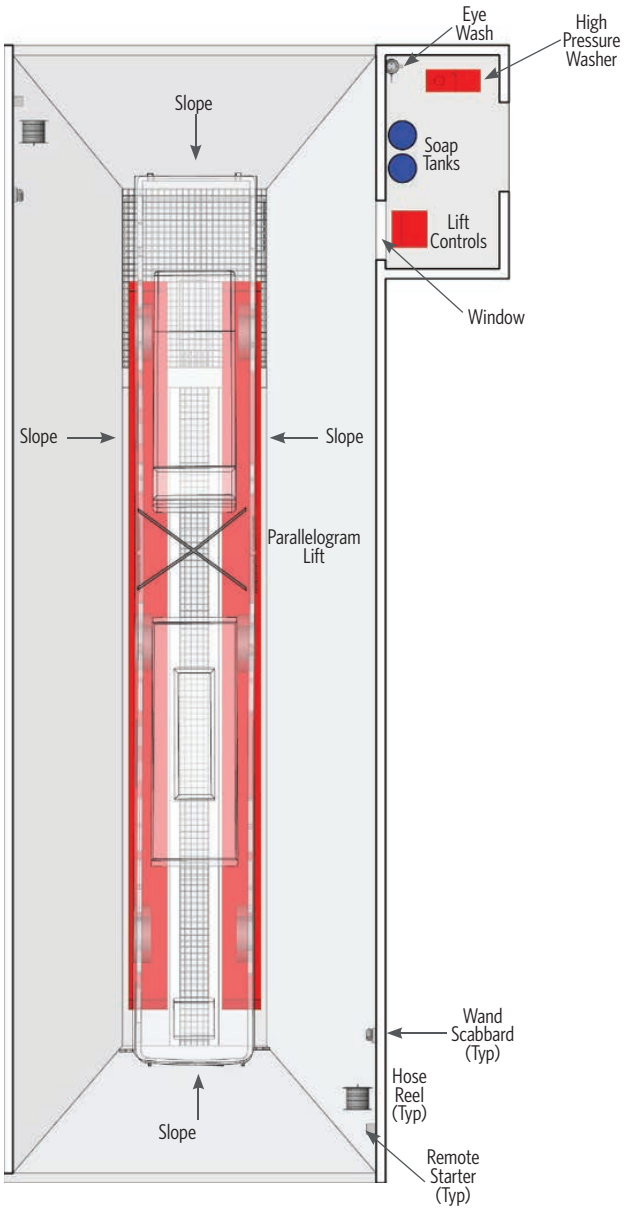
PLUMBING CONSIDERATIONS

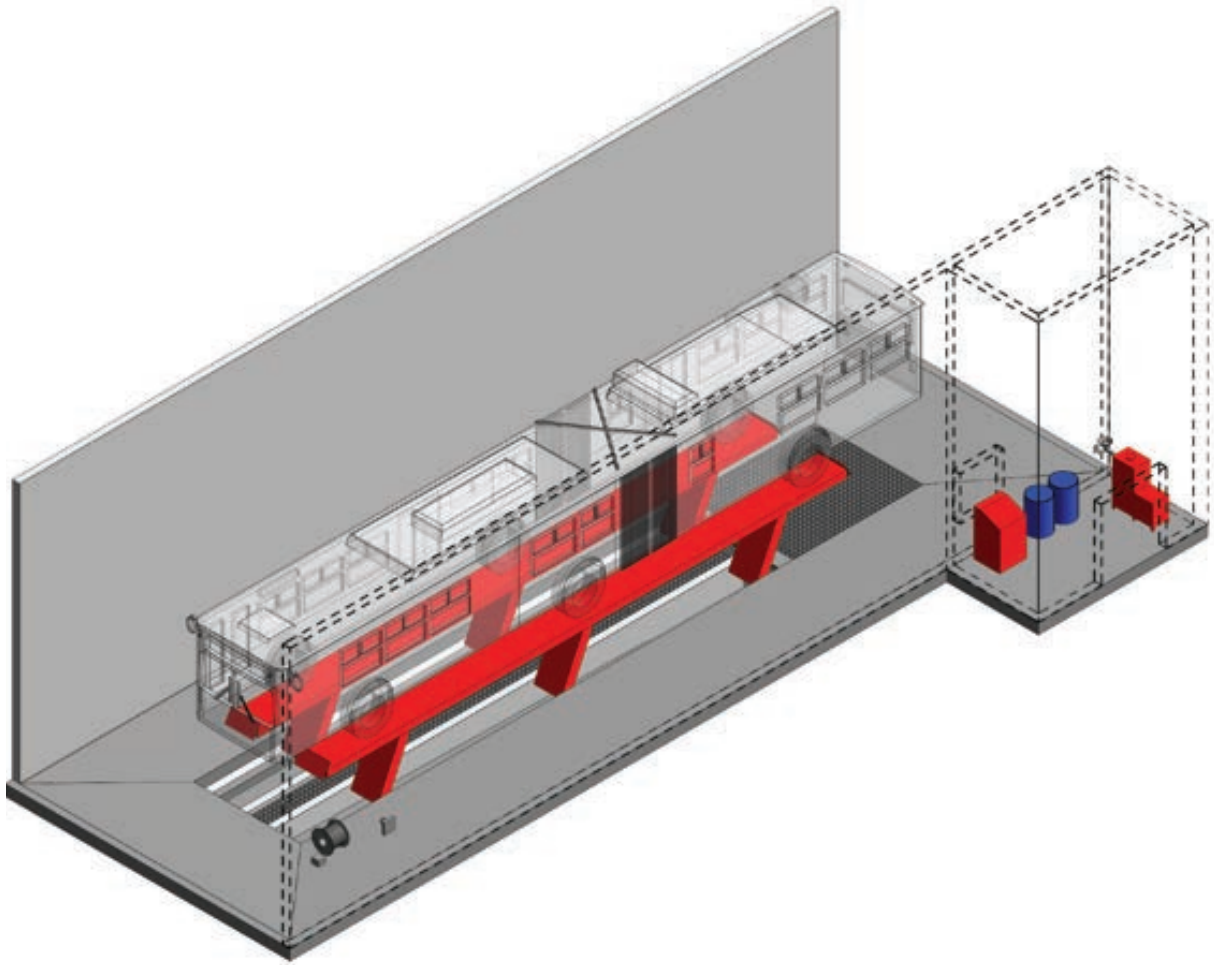
- Lubrication reel bank (shared one per two bays)
- 3/4” water hose bibb with standard faucet at rear of bay 2’-0” AFF (one per three bays)
- Compressed air:
  - ✓ 2’-0” compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4’-0” AFF
  - ✓ Provide disconnects for 3/8” and 1/2” impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Additional plumbing connections (water, drainage, etc.) as required by equipment.

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (75 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each bay

60' BUS CHASSIS WASH





60' BUS CHASSIS WASH

FUNCTION

Chassis Wash Bay: Enclosed bay for washing of underside of trolleys and future battery electric buses before bringing into repair bays. Wash Equipment Room: A room adjacent to the Wash Bay for high pressure washer and soap drums.

RELATIONSHIP TO OTHER AREAS

- Access to all other shop areas

CRITICAL DIMENSIONS

- 19'-0" vertical clearance
- 20'-0" wide by 75'-0" long

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- No OCS: Wire in position for trolley buses.

DESIGN FEATURES

- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry, with polyurea coatings treatment for wet and moisture protection
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors: Personnel doors with view panels to meet applicable code exit requirements

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structural grating over sump pit to accommodate H-20 loading
- Large grated sump with side drain for overflow
- Slope floor to trench drain and sump pit
- Structure as needed to support equipment

MECHANICAL CONSIDERATIONS

- Special ventilation to remove moisture
- Water resistant heating system
- In-floor radiant heating (if desired)
- As required by equipment
- Exhaust:
  - ✓ Minimum 10 air changes per hour when wash equipment is activated.
  - ✓ Minimum one air change per hour when wash equipment is inactive
- Heating set point: 55 degrees Fahrenheit

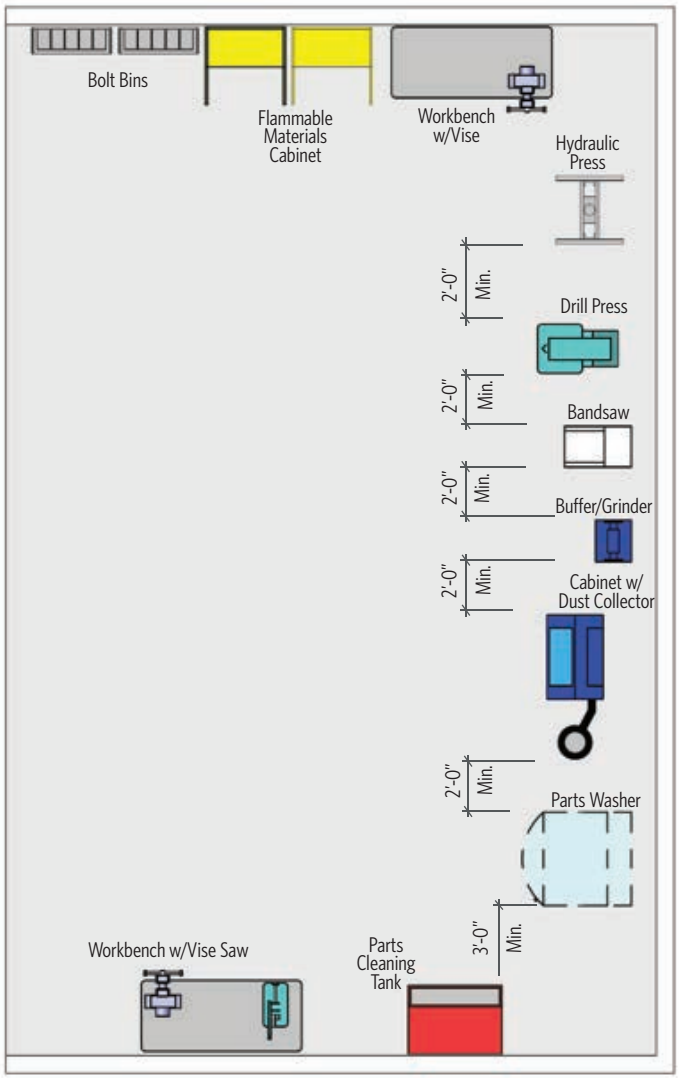
PLUMBING CONSIDERATIONS

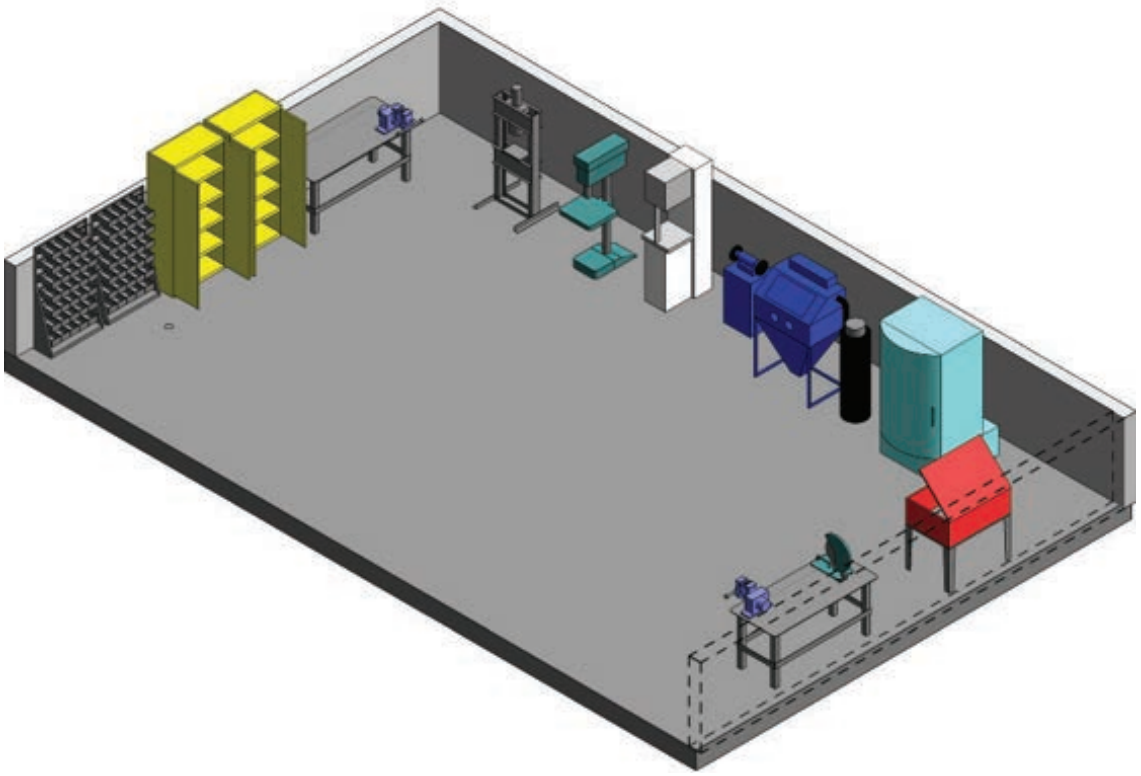
- Compressed air:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ As required by equipment
- Wash connections from high pressure washer to wand scabbard on both sides of bay
- Water connection to emergency eye wash/shower station
- Trench drain area (with removable cover), with sediment basket upstream of trap, to central sediment and oil inceptor
- Large grated sump with side drain overflow to central sediment and oil inceptor
- Additional plumbing connections (water, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide waterproof duplex receptacles (four minimum) on walls
- Lighting:
  - ✓ Sealed LED water tight lighting fixtures with no external reset device on walls (20 fc average)
  - ✓ Fixtures located to illuminate work space and around vehicles
- Communications: Paging/intercom system speakers

COMMON WORK AREA





COMMON WORK AREA

FUNCTION

Designated area for common fixed shop equipment which supports all repair bays and associated shop areas.

RELATIONSHIP TO OTHER AREAS

- Access from Maintenance Office areas
- Adjacent to Repair Bays, Parts Room, and Portable Equipment Storage
- Located on first floor

CRITICAL DIMENSIONS

- 12'-0" to vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Half-height 56" walls on three sides for utilities and to prevent blocking vision of shop from office areas and repair bays
- Forklift access
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors: None

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment

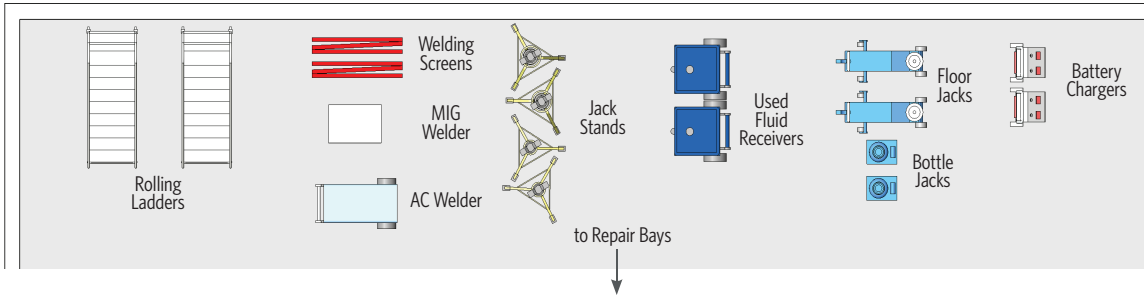
PLUMBING CONSIDERATIONS

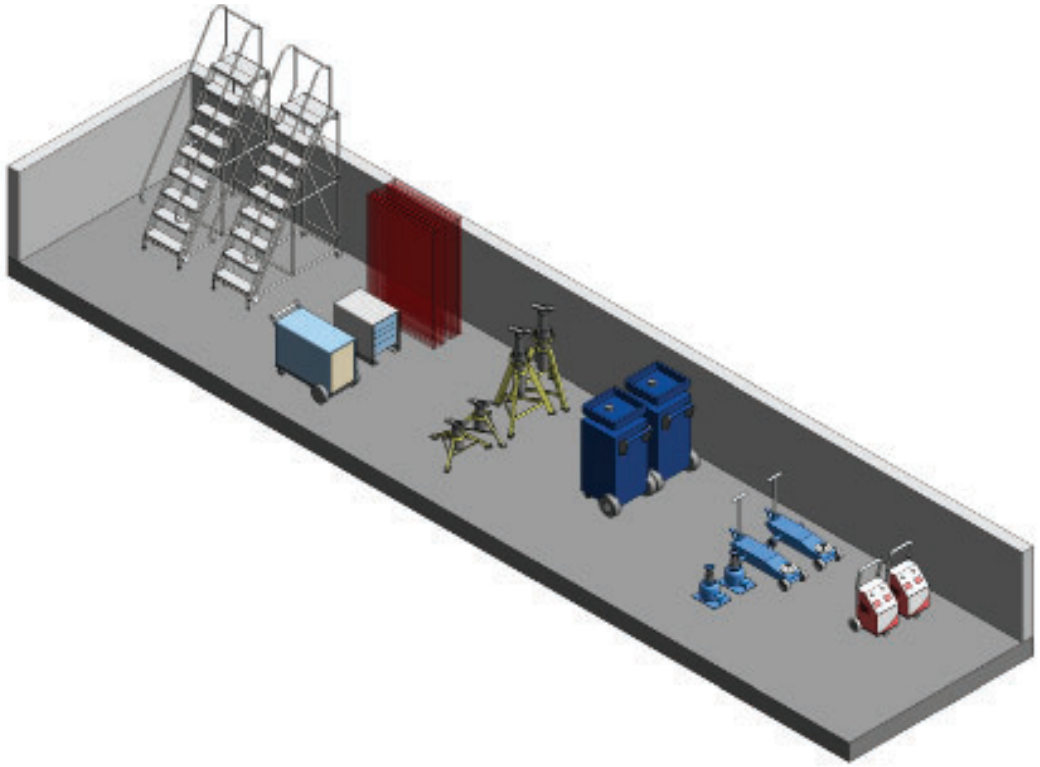
- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- Additional plumbing connections (water, drainage, etc.) as required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (50 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

PORTABLE EQUIPMENT STORAGE





FUNCTION

A dedicated area for storage of portable shop equipment.

RELATIONSHIP TO OTHER AREAS

- Access to all Repair Bays and all shop areas

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

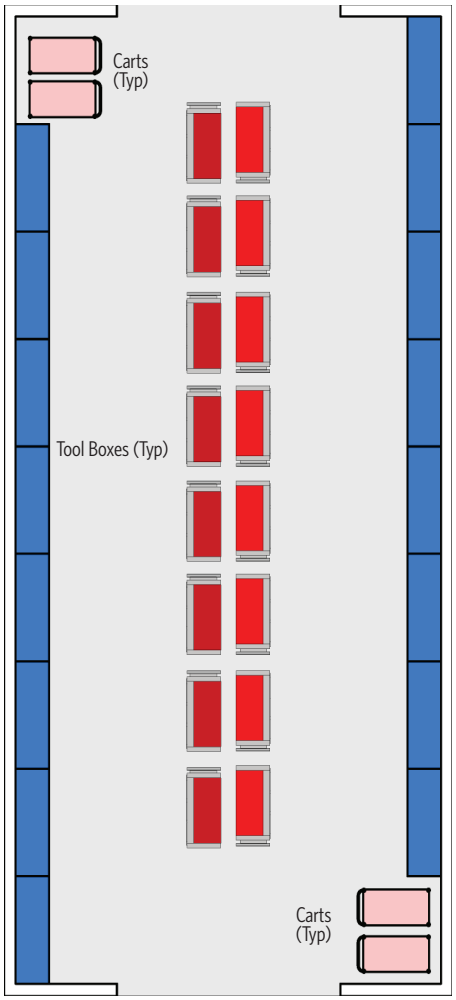
EQUIPMENT/FURNISHINGS

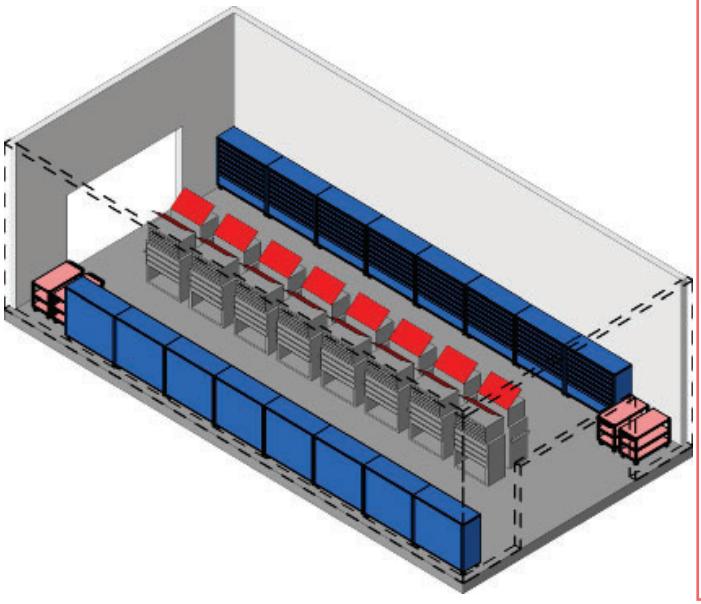
- Portable equipment including but not limited to: Service jacks, bottle jacks, jack stands, ladders, diagnostic equipment, used fluid drain pans, battery chargers, work platforms, welders, welding screens, etc.
- Typical equipment is shown, reference Appendix C: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finish concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
  - ✓ Fixtures located to illuminate work spaces

TOOL BOX STORAGE





FUNCTION

Dedicated area for the storage of toolboxes and carts.

RELATIONSHIP TO OTHER AREAS

- Access to all repair bays and all shop areas

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

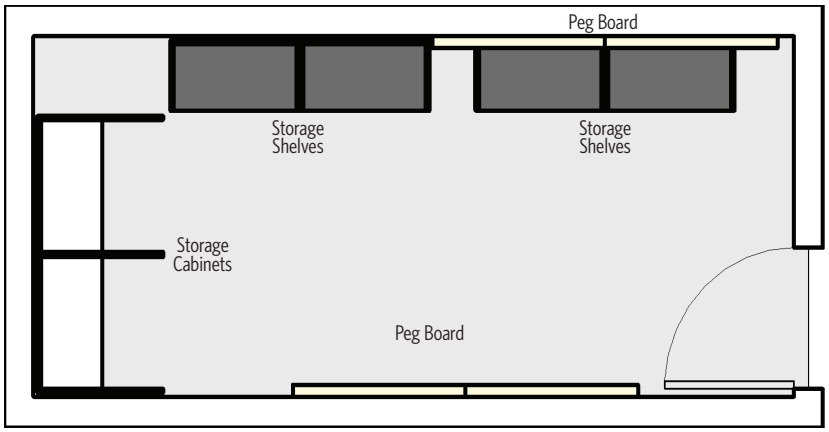
EQUIPMENT/FURNISHINGS

- Toolboxes
- Carts
- Anchors to be installed for security toolboxes
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

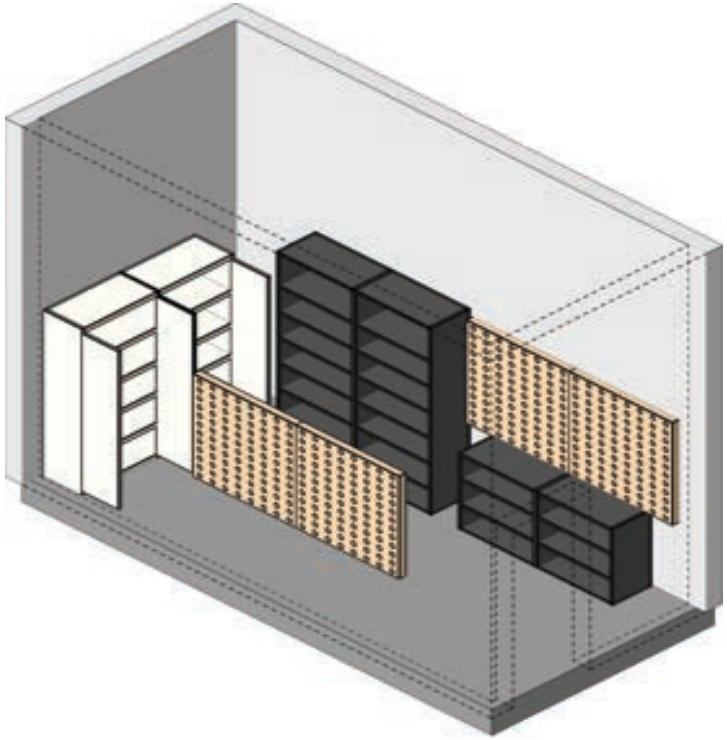
DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
  - ✓ Fixtures located to illuminate work spaces

TOOL STORAGE



GENERIC WALL



FUNCTION

Secure area for storing specialized tools and equipment.

RELATIONSHIP TO OTHER AREAS

- Access to Repair Bays and Shops
- Adjacent to Parts Room and Maintenance Offices

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

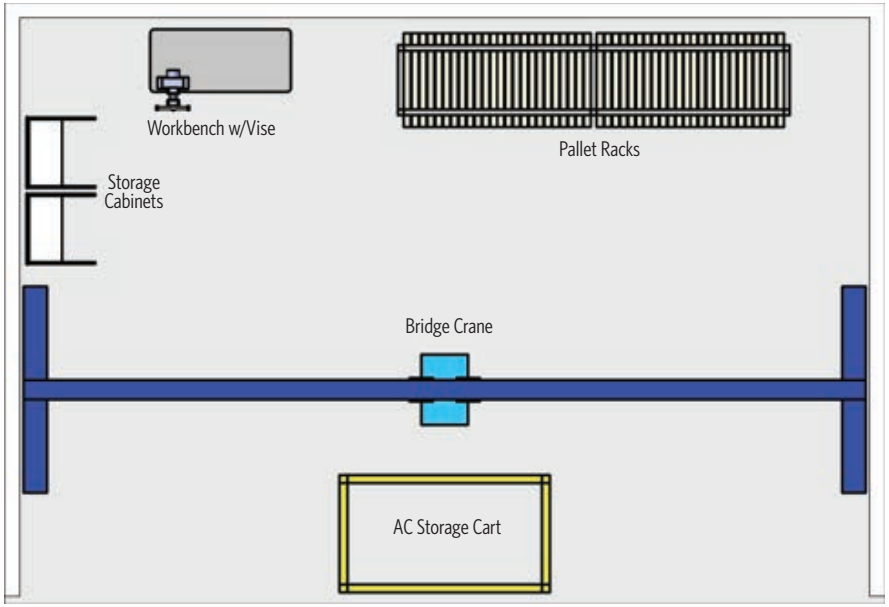
EQUIPMENT/FURNISHINGS

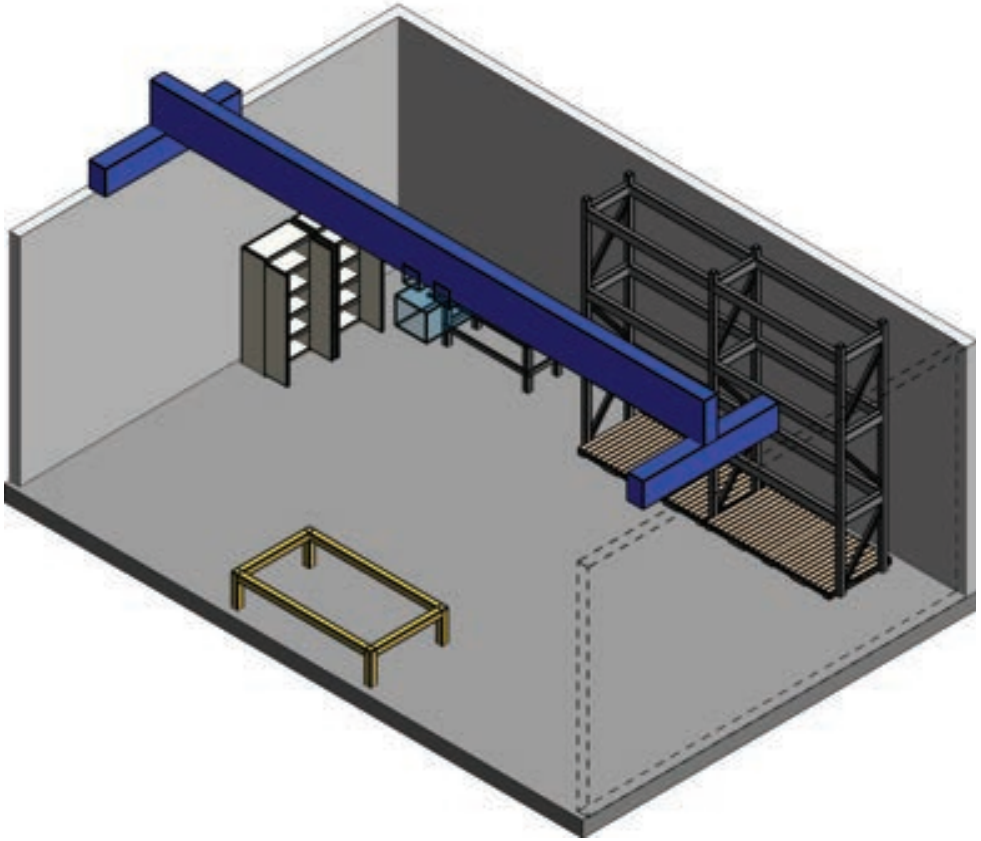
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

AC SHOP/STORAGE





AC SHOP/STORAGE

FUNCTION

Designated shop for repair and storage of air conditioning units for trolley and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Adjacent to 60' Bus Preventive Maintenance

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Forklift access
- Physically separated from other areas to prevent migration of noise, dirt and fumes, if possible
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- In-floor radiant heat (if desired)
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- As required by equipment

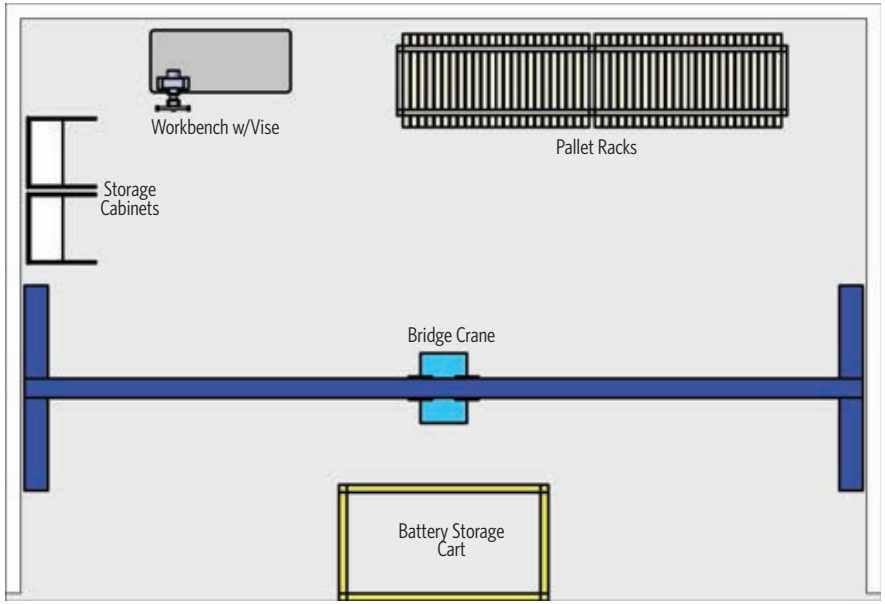
PLUMBING CONSIDERATIONS

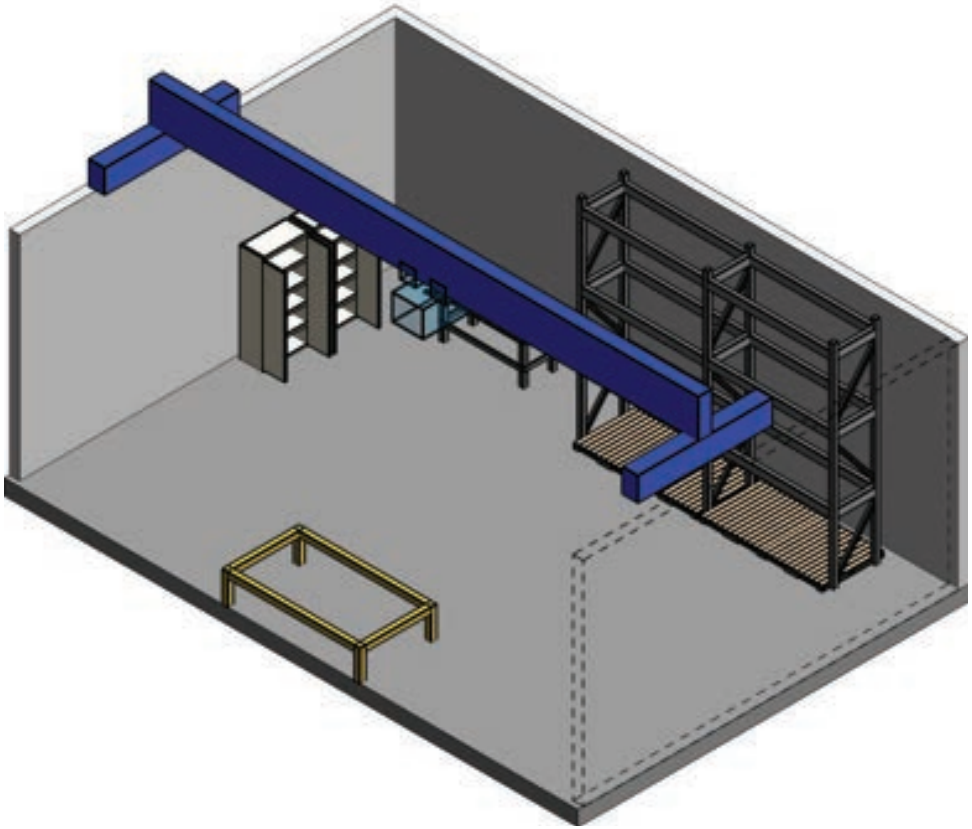
- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (50 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

BATTERY REBUILD SHOP





BATTERY REBUILD SHOP

FUNCTION

Designated shop for the repair and storage of batteries for trolley and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Adjacent to 60' Bus Preventive Maintenance

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Forklift access
- Physically separated from other areas to prevent migration of noise, dirt and fumes, if possible
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- In-floor radiant heat (if desired)
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- As required by equipment

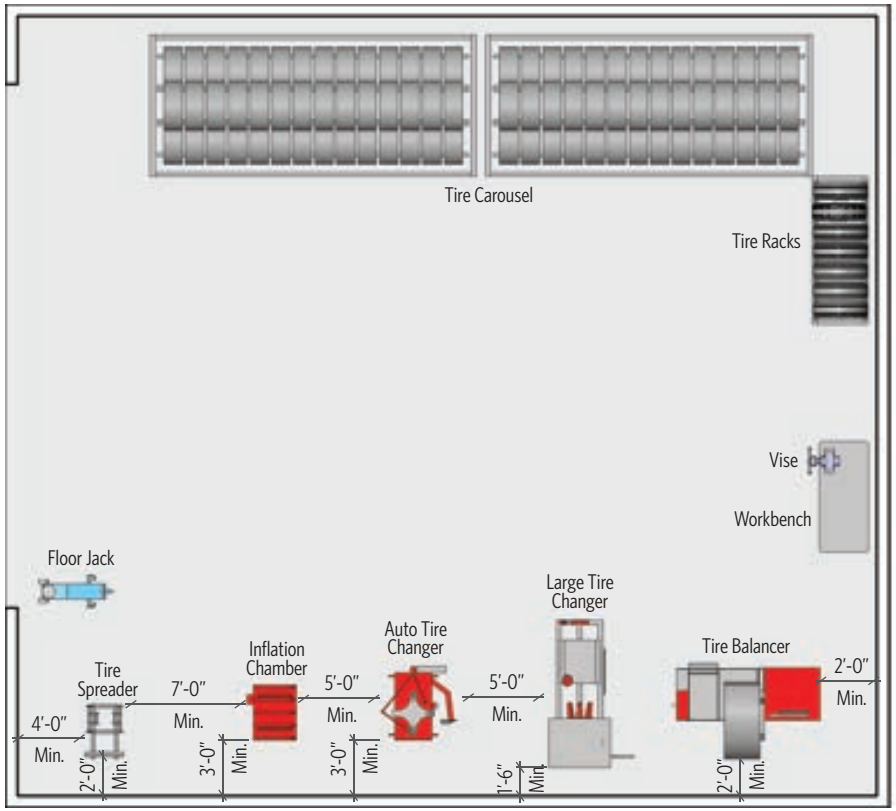
PLUMBING CONSIDERATIONS

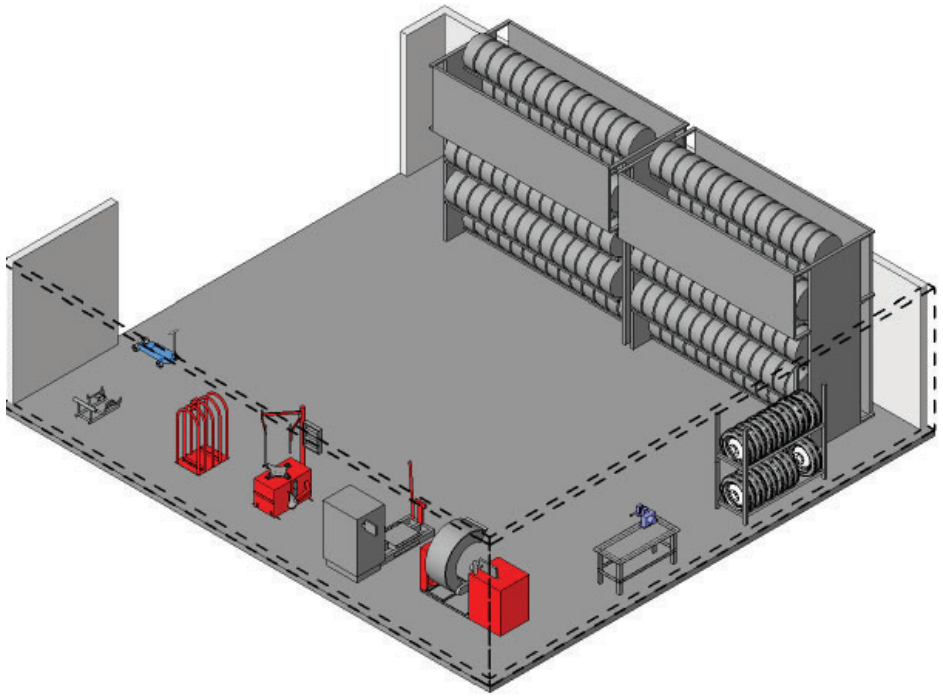
- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (50 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

TIRE SHOP/STORAGE





TIRE SHOP/STORAGE

FUNCTION

Repair, changing, balancing, and storage of tires.

RELATIONSHIP TO OTHER AREAS

- Adjacent to 60 Foot Bus Tire Bay
- Access to Common Work Area and Parts Storage

CRITICAL DIMENSIONS

- 19'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Forklift access
- Access to exterior for delivery of tires
- Physically separated with full height walls from other areas to prevent migration of noise, dirt, and fumes
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed for equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- In-floor radiant heat (if desired)
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- As required by equipment

PLUMBING CONSIDERATIONS

- Compressed air:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- As required by equipment

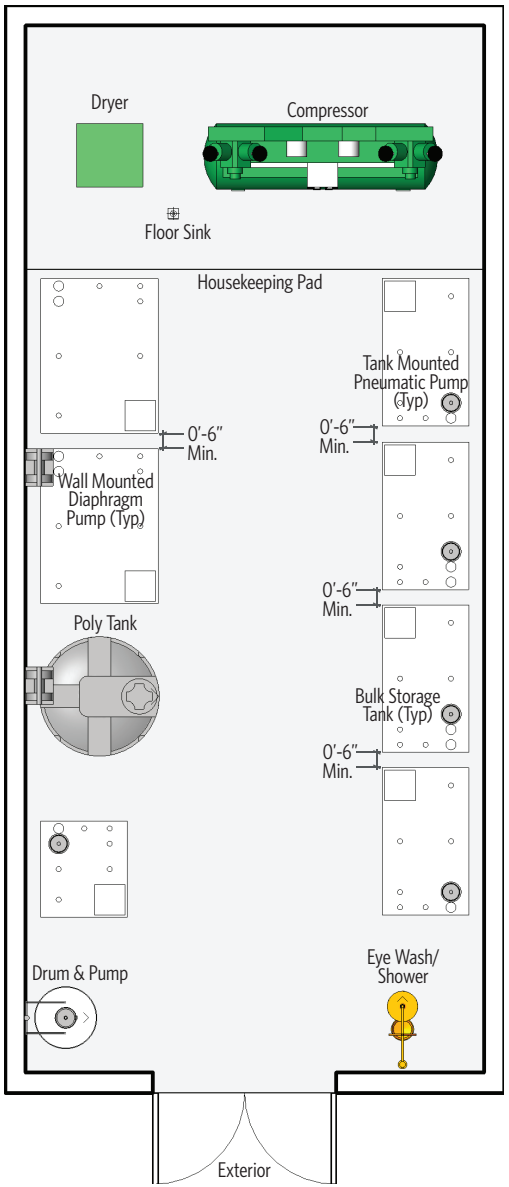
ELECTRICAL CONSIDERATIONS

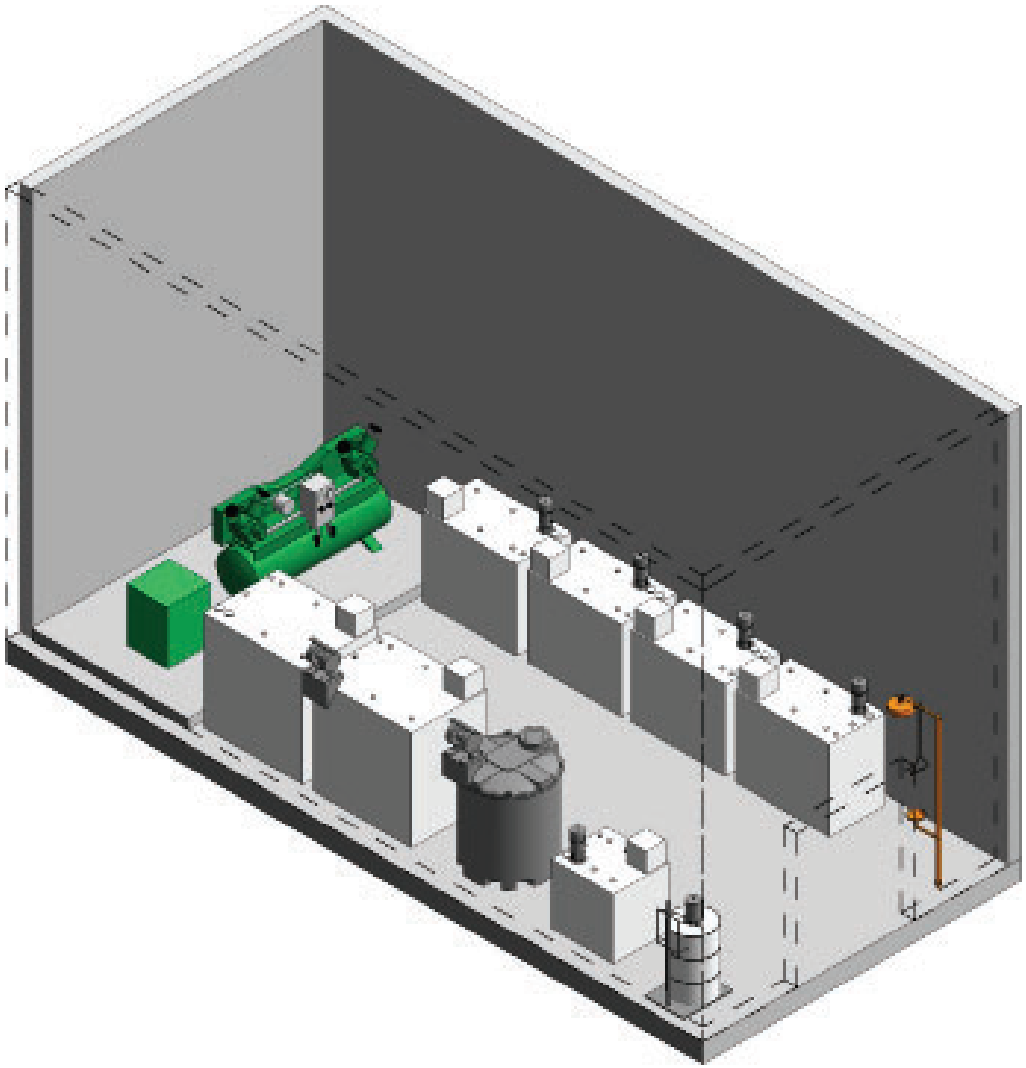
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (five minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum in Storage Area (15 fc average) and Shop Area (25 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

FIRE SUPPRESSION CONSIDERATIONS

The fire protection and pyrotechnics experts on the detailed design team will be responsible for devising a robust fire protection system for the tire bay and tire shop/storage areas that minimizes risk to the Yard and any joint development above. Review and recommendations by these experts will include, but not be limited to, the location, ventilation, and fire suppression systems for Potrero Yard's tire facilities.

LUBE/COMPRESSOR ROOM





LUBE/COMPRESSOR ROOM

FUNCTION

Enclosed room for storage and central distribution of lubricants. Space shall include a compressor(s) and refrigerated air dryer(s).

RELATIONSHIP TO OTHER AREAS

- Access to exterior for deliveries

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Exterior access for deliveries
- Acoustically and physically separated from other areas to prevent migration of noise, dirt, and fumes

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finish sound absorption material
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, with light colored finish, and sound absorption material
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Double 6'-0" wide door with interior exit device
  - ✓ No thresholds
- Acoustics: Determine based on equipment and location of adjacent spaces

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- 0'-6" housekeeping pad for both the air compressor and refrigerated air dryer
- Structure as needed to support equipment
- Containment pit for 110 percent of largest tank (per local code)

MECHANICAL CONSIDERATIONS

- Heating set point: 55 degrees Fahrenheit
- Exhaust: Minimum 1.0 CFM per square foot
- Negative pressurization
- As required by equipment

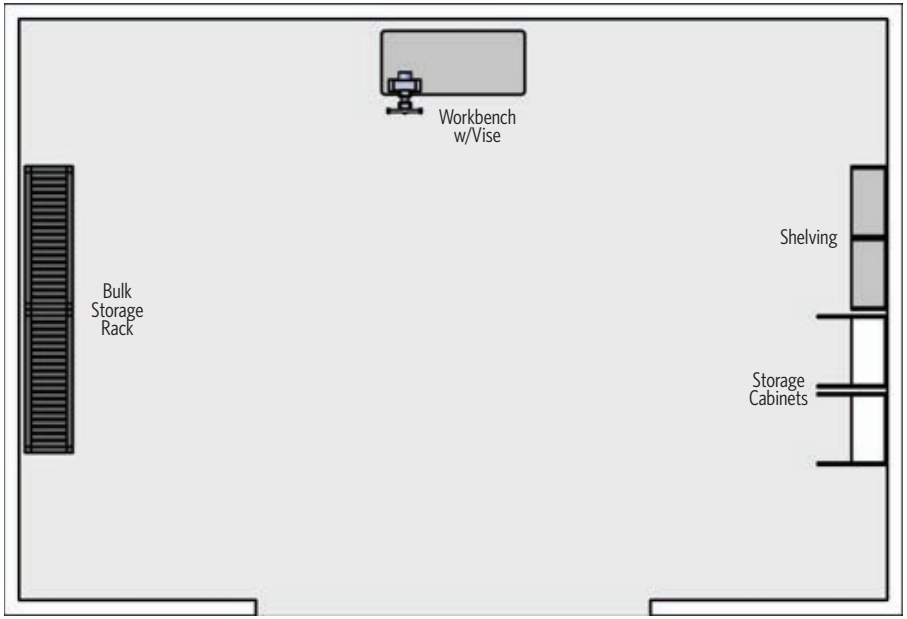
PLUMBING CONSIDERATIONS

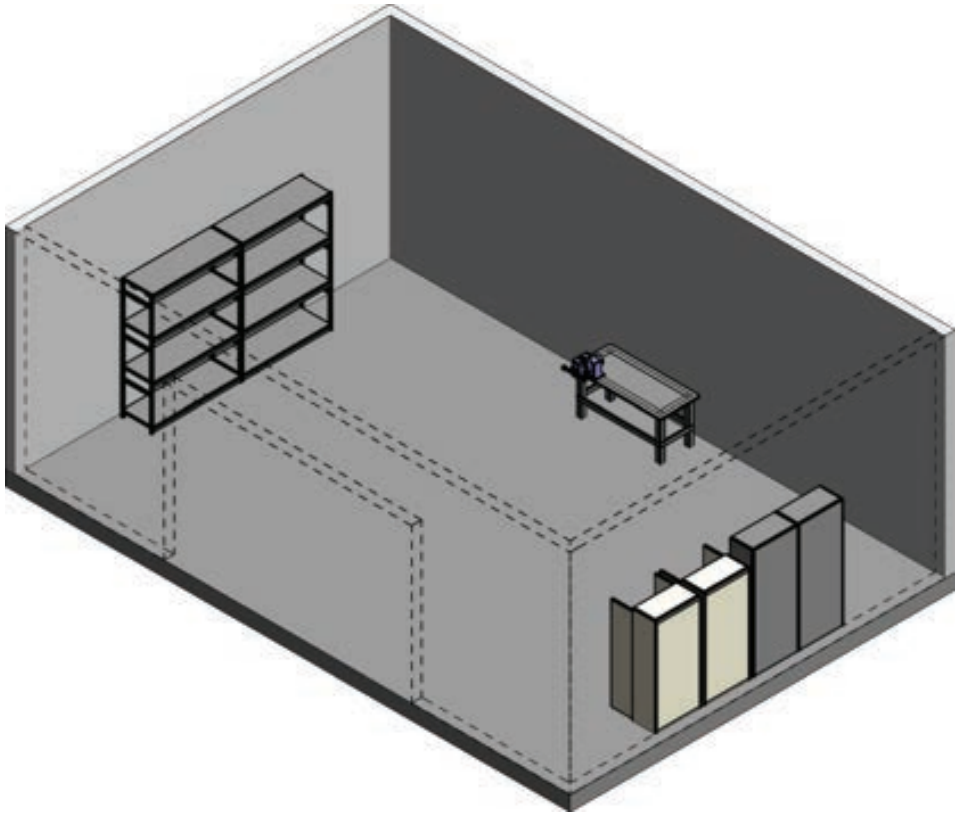
- Compressed air:
  - ✓ Duplex air compressor, air dryer, and air receiver
  - ✓ Floor sink between air compressor and dryer. Plumb to central sediment and oil interceptor
  - ✓ 2'-0" compressed air piping loop (minimum) started in the Lube/Compressor Room
  - ✓ Compressed air line with 3/8" and 1/2" shut-off valve, separator, regulator with gauge, lubricator, and quick disconnect on wall at 4'-0" AFF
  - ✓ Connect to lubricant pumps
- Tank mount all piston lubricant pump(s)
- Wall mount all diaphragm pump(s)
- CG pump mounted to an air operated hoist (if required)
- Plumb tanks to corresponding lube reel banks located in the Repair Bays
- Plumb UC tanks to corresponding pumps located in the Repair Bays (if required)
- 3/4" water hose bibb with standard faucet 2'-0" AFF
- Emergency eyewash

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls
  - ✓ Lube/compressor: 25 fc average
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (25 fc average)
  - ✓ Fixtures located to illuminate work spaces

MINOR BODY SHOP





MINOR BODY SHOP

FUNCTION

Designated shop for minor body repair or replacement and storage.

RELATIONSHIP TO OTHER AREAS

- Open to Minor Body Bay

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Forklift access
- Physically separated from other areas to prevent migration of noise, dirt and fumes, if possible
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- In-floor radiant heat (if desired)
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- Exhaust and makeup air for dust collection system
- As required by equipment

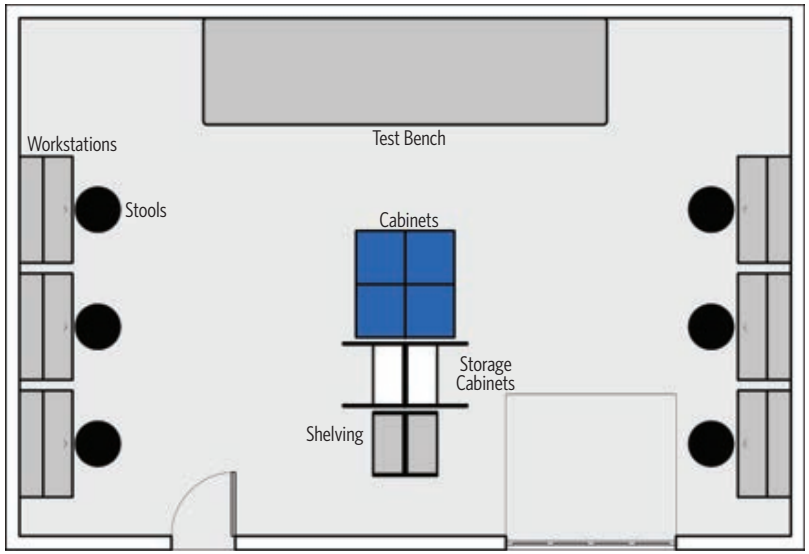
PLUMBING CONSIDERATIONS

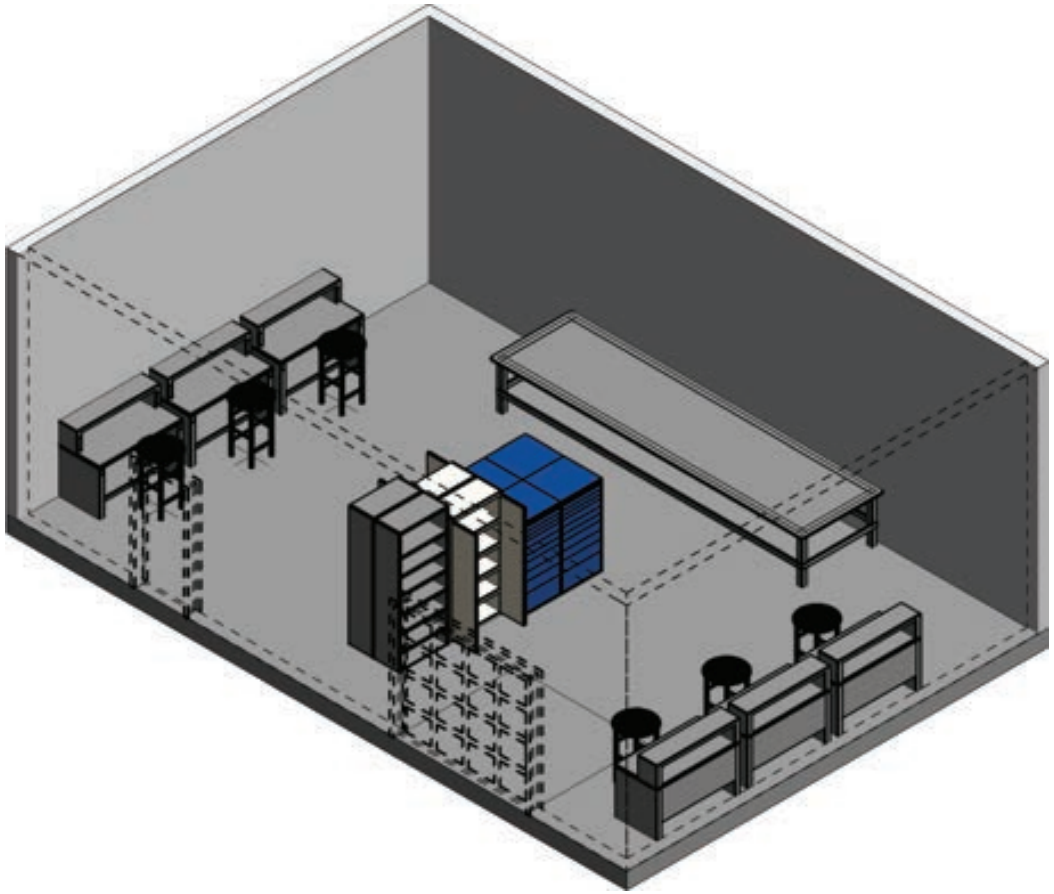
- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (50 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

ELECTRONIC BENCH SHOP





ELECTRONIC BENCH SHOP

FUNCTION

Enclosed area for repairing and modifying trolleys and future BEBs electronic and computer control systems. Radio equipment, electrical signage, and other electrical equipment is installed and maintained in this space.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Electronic Shop Workstations

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Dust proof required for electrical components

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors:
  - ✓ Personnel doors with view panels to meet applicable code exit requirements
  - ✓ Overhead door (if desired): High-lifting sectional, steel, insulated, 10'-0" by 10'-0" with view panels, automatic operator, interior and exterior push button controls

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)

MECHANICAL CONSIDERATIONS

- In-floor radiant heat (if desired)
- Cooling set point: 74 degrees Fahrenheit
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- As required by equipment
- Relative humidity: 50-35 percent

PLUMBING CONSIDERATIONS

- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (50 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

SECTION 5.4: FARE BOX AND CLIPPER CARD READER REPAIR SHOP

GENERAL OFFICE MODULES: OFFICE AREAS

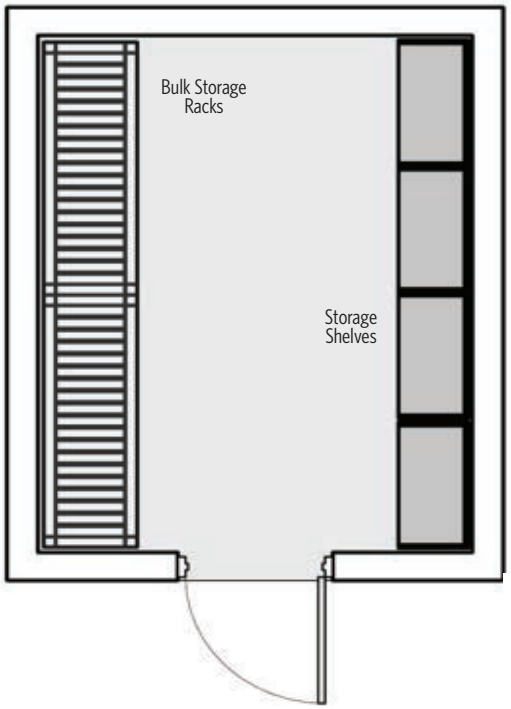
MANAGER

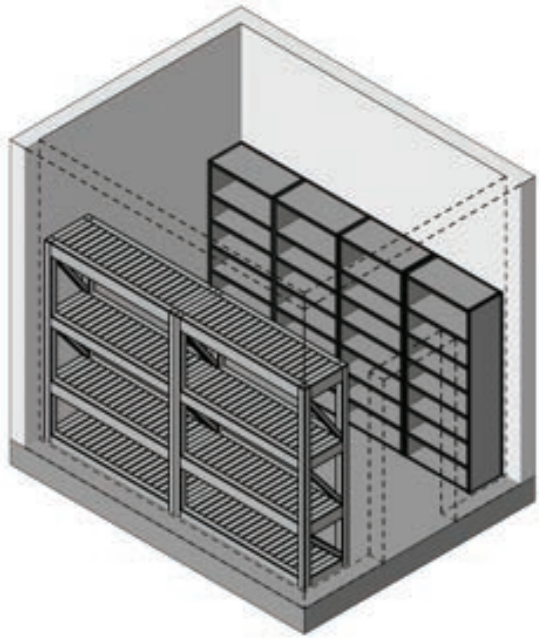
- Reference **Office Module Private Office- 120 sf**
- Adjacent to Fare Box Staff

FARE BOX STAFF

- Reference **Office Module Workstation- 64 sf**
- Adjacent to Manager
- Adjacent to Shop, Storage, and Parts Storage

INCOMING AND OUTGOING DEVICE STORAGE





FUNCTION

Storage of the fare box and clipper card readers when needing repair and repair is completed.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Fare Box Staff
- Adjacent to freight elevator

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

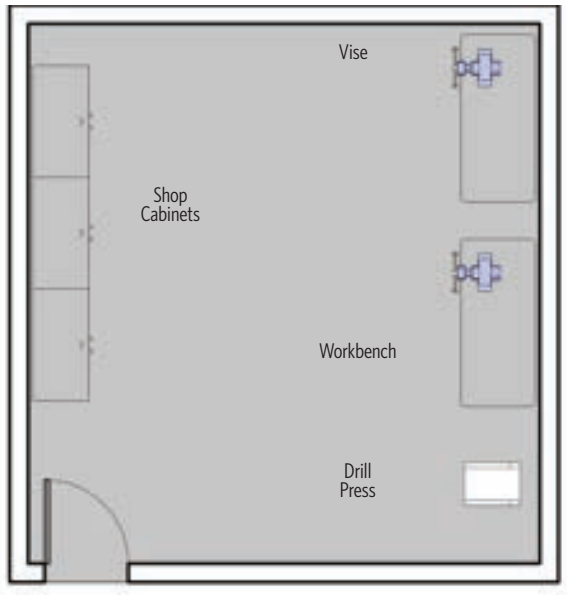
EQUIPMENT/FURNISHINGS

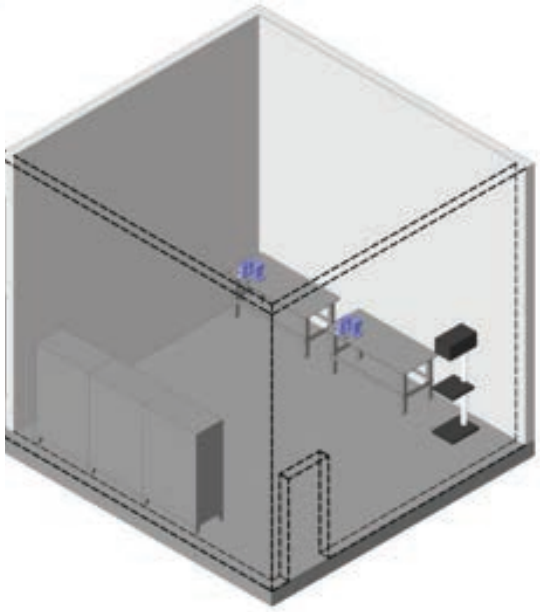
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

SHOP





FUNCTION

Designated shop for repair of fare boxes and clipper readers.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Fare Box Staff, Storage, and Parts Storage
- Adjacent to freight elevator

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

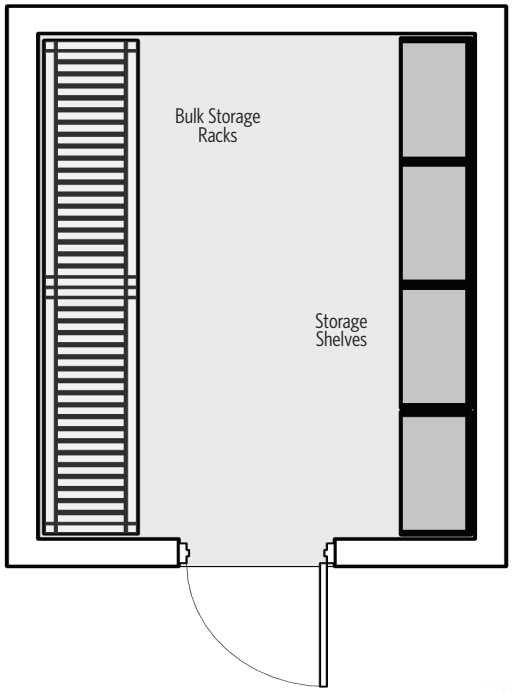
EQUIPMENT/FURNISHINGS

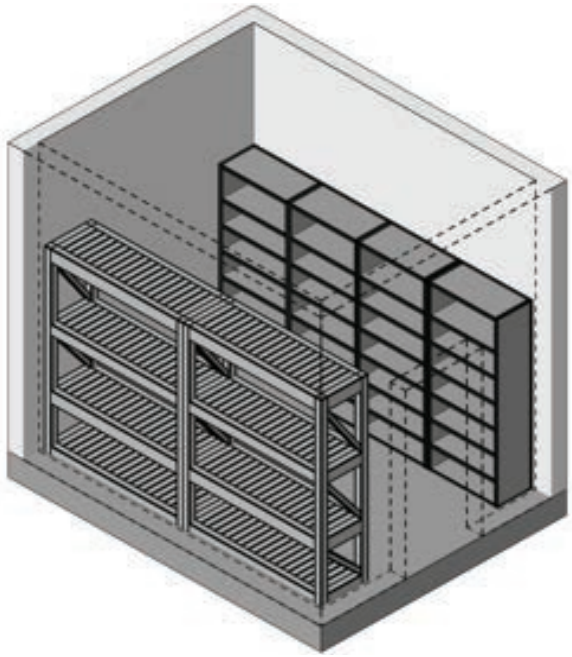
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

STORAGE





FUNCTION

Dedicated secure storage for fare box and clipper reader supplies.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Shop and Parts Storage
- Adjacent to freight elevator

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

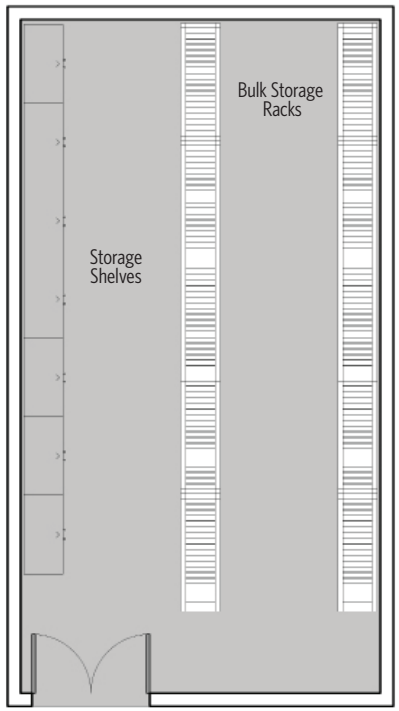
EQUIPMENT/FURNISHINGS

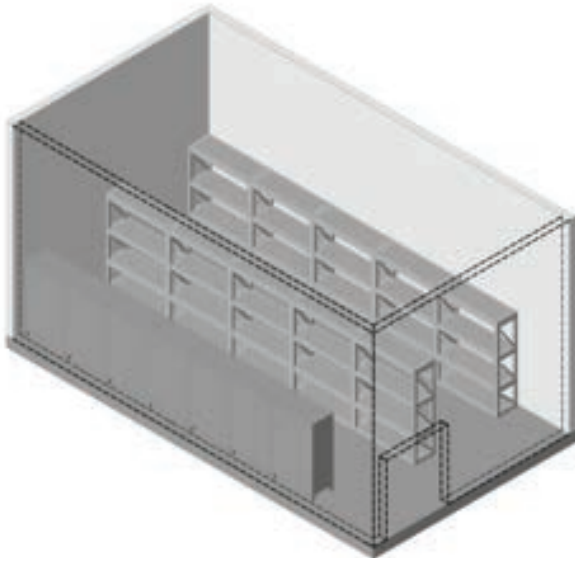
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

PARTS STORAGE





FUNCTION

Dedicated storage for fare box and clipper reader components.

RELATIONSHIP TO OTHER AREAS

- Adjacent to freight elevator

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

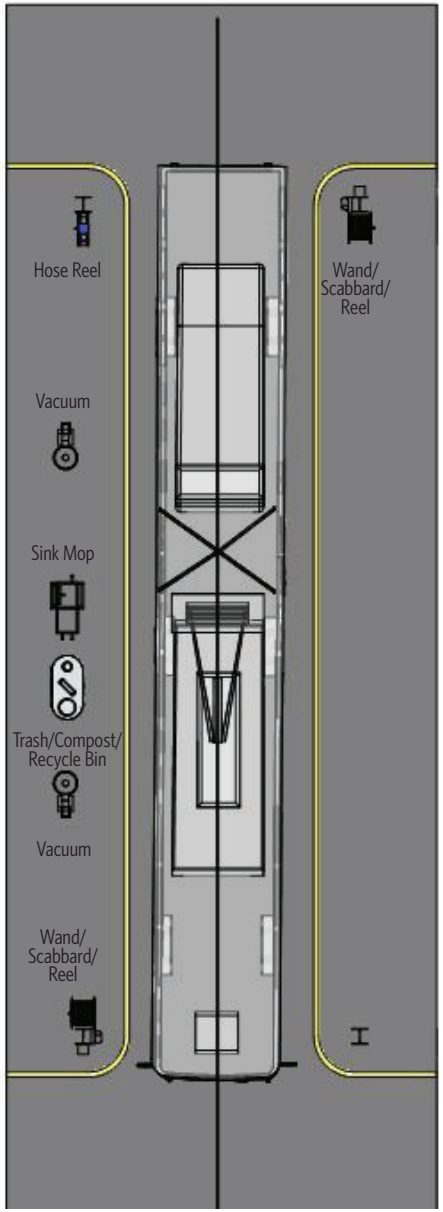
SECTION 5.5: SERVICE AND CLEAN

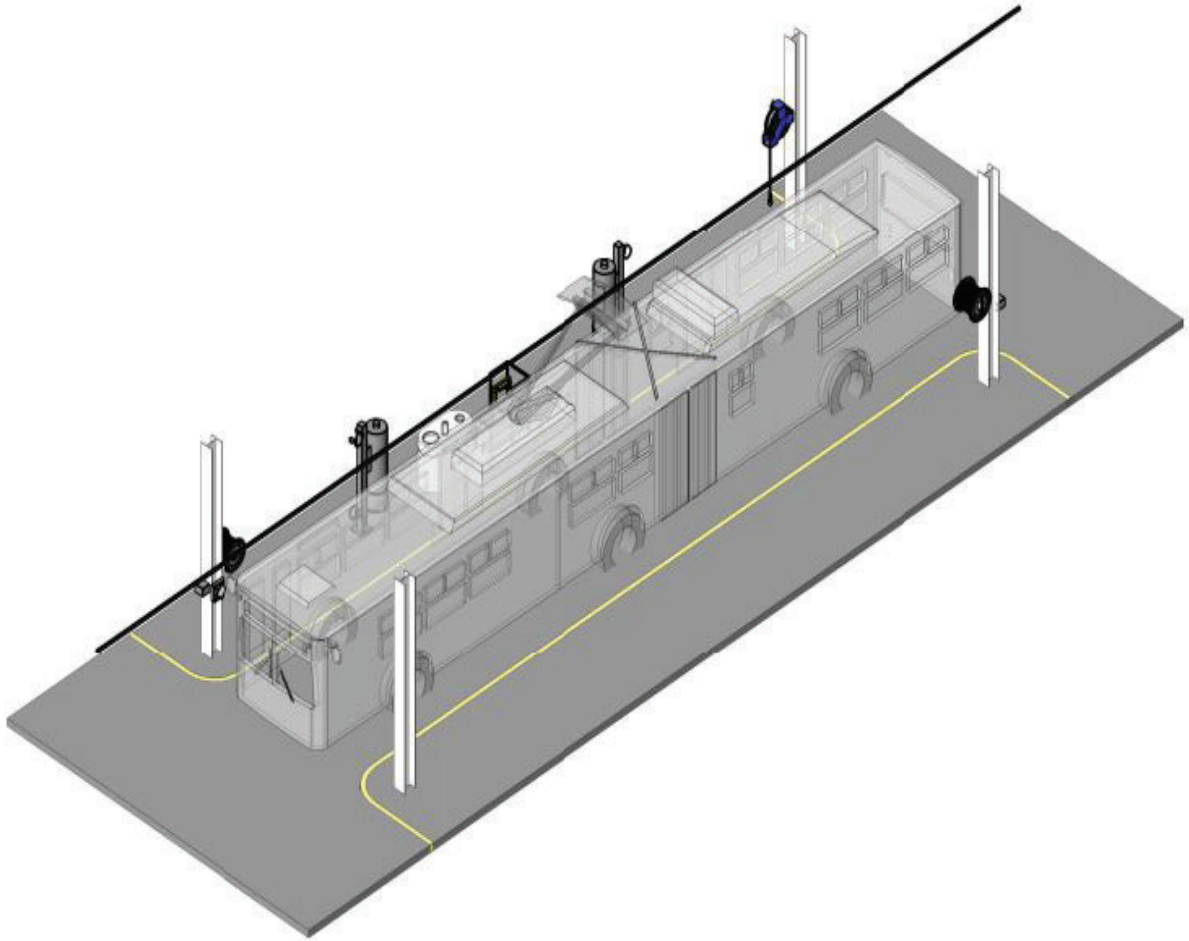
GENERAL OFFICE MODULE: OFFICE AREAS

SERVICE SUPERVISOR OFFICE

- Reference **Office Module Shared Office**
- Adjacent to Service Position and Bus Washer

SERVICE POSITION





SERVICE POSITION

FUNCTION

Dedicated bay used for nightly servicing, fluid level checks, and tire pressure checks. The space also serves as detail bay cleaning position (when needed).

RELATIONSHIP TO OTHER AREAS

- Adjacent to Cleaning Equipment Storage

CRITICAL DIMENSIONS

- 16’-0” vertical clearance
- 20’-0” wide by 70’-0” long
- 8’-0” island
- 12’-0” lane

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- Wand
- Scabbard
- Trash/Compost/Recycle bin
- OCS overhead
- Electric charging: Reference E-Bus Performance Requirements. This E-Bus Performance Requirements Document supersedes anything in this document.

DESIGN FEATURES

- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes
  - ✓ Floor: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors: None

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment

MECHANICAL CONSIDERATIONS

- As required by equipment
- 1.0 CFM per square foot continuous exhaust in accordance with NFPA 30A
- In-floor radiant heat (if desired)

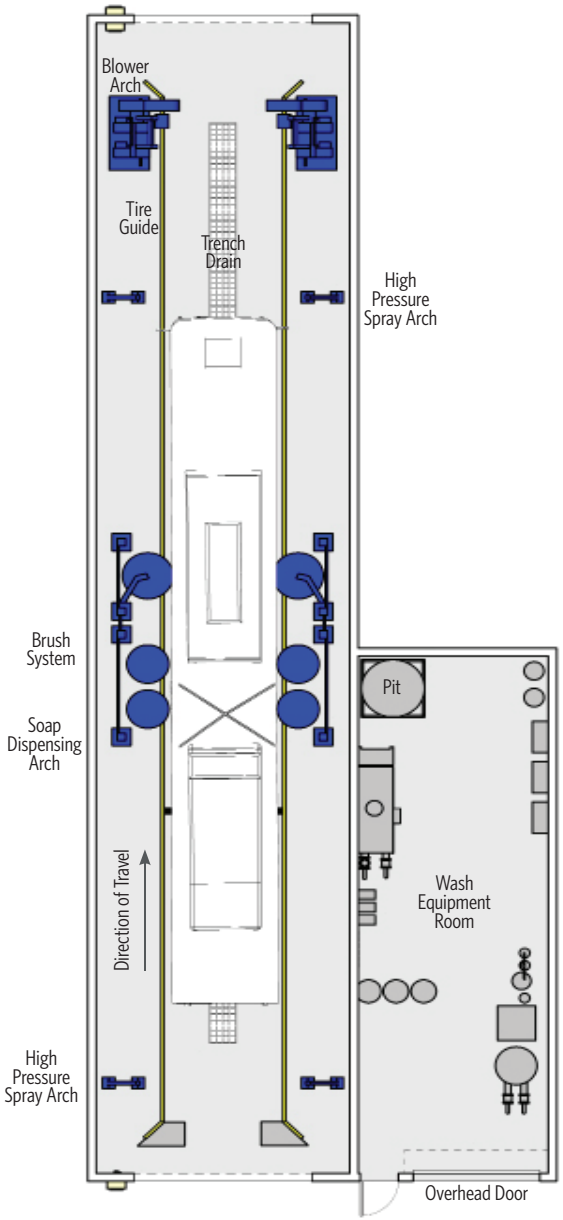
PLUMBING CONSIDERATIONS

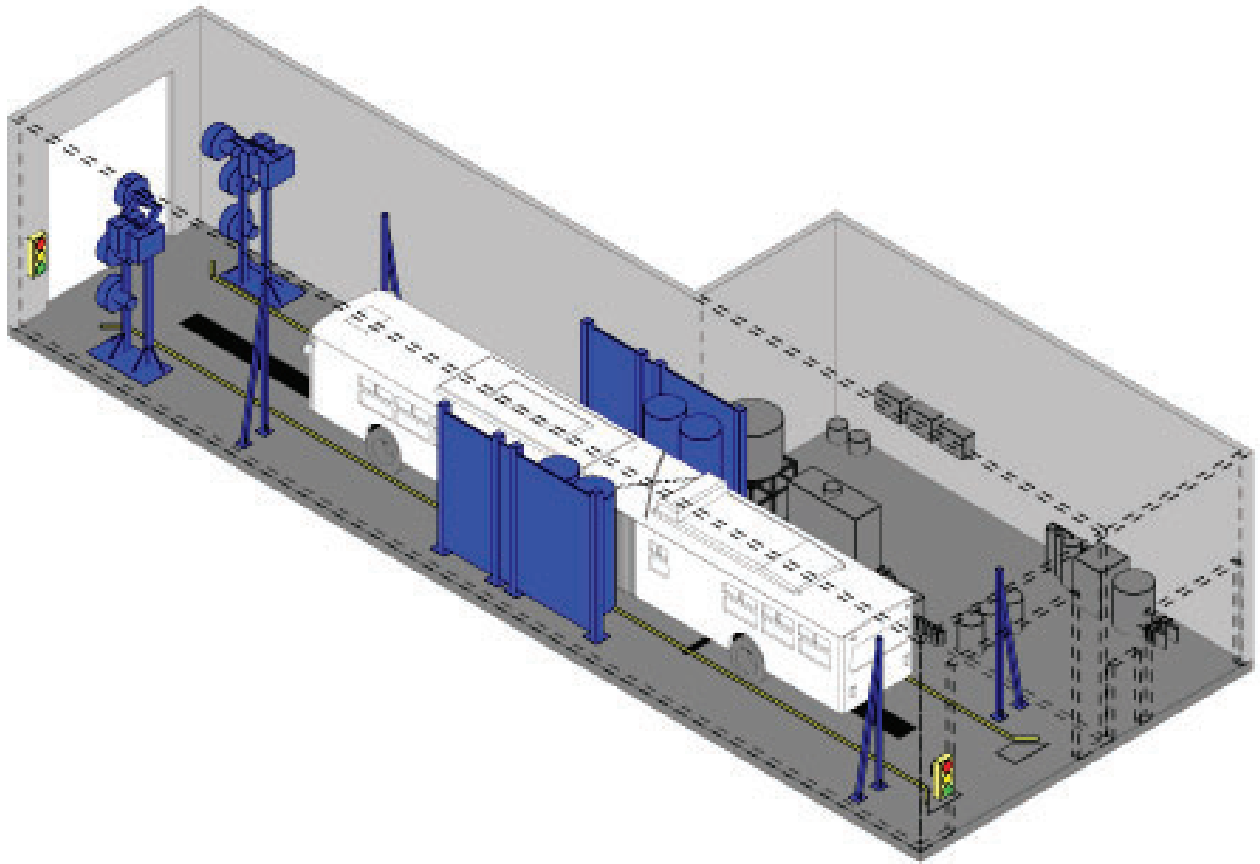
- 3/4” hot water hose bib with standard faucet, 2’-0” AFF (one per mop sink)
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets mounted at 3’-6” AFF and water protected
  - ✓ Provide general purpose duplex receptacles (four minimum) on walls, columns, and between overhead doors
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
  - ✓ Fixtures located to illuminate work spaces and around the vehicles
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each lane/fuel position

BUS WASHER/WATER RECLAMATION





BUS WASHER/WATER RECLAMATION

FUNCTION

Dedicated area for automatic washing of sides, top, front, back, and under carriage of the trolleys, motors coaches, and future BEBs.

RELATIONSHIP TO OTHER AREAS

- Access to Service Position

CRITICAL DIMENSIONS

- 18'-0" vertical clearance to structure (minimum)
- 20'-0" wide by 100'-0" long

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment
- Drive through wash system
- Water reclamation system
- No OCS

DESIGN FEATURES

- Forklift accessible
- Natural daylighting desired

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, cast-in-place concrete or CMU block, light colored finish, with polyurea coating treatment for wet and moisture protection
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
  - ✓ Personnel doors with view panels to meet applicable code exit requirements (Equipment Room)
  - ✓ Equipment Room overhead door, 10'-0" by 12'-0"
- Bollards on exterior jambs of overhead door (two each)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structural grating over sump pit to accommodate H-20 loading
- Slope floor to trench drain and sump pit
- Structure as needed to support equipment
- Control joints to have metal water stops
- Wash Bay:
  - ✓ Integrated trench drain and sump pit with removable covers
  - ✓ Trench drain with removable cover at overhead door(s)
  - ✓ Wash Equipment Room: sump pits with removable covers

MECHANICAL CONSIDERATIONS

- Special ventilation to remove moisture, low air supply to eliminate steam
- Water resistant heating system
- As required by equipment
- Exhaust:
  - ✓ Minimum 10 air changes per hour when wash equipment is activated
  - ✓ Minimum one air change per hour when wash equipment is inactive

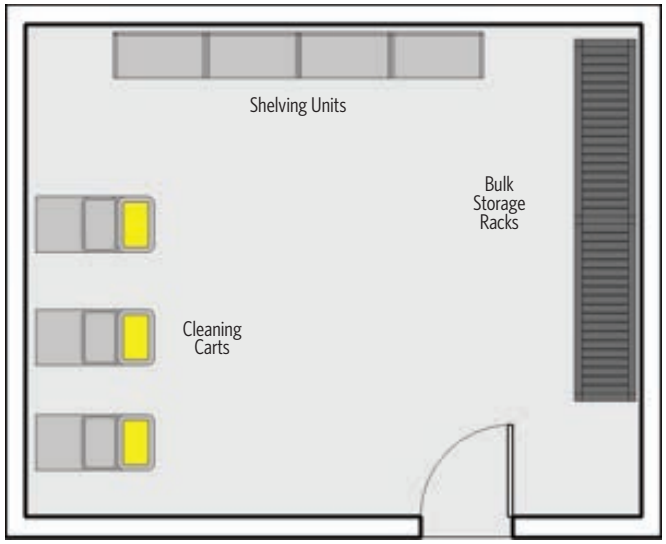
PLUMBING CONSIDERATIONS

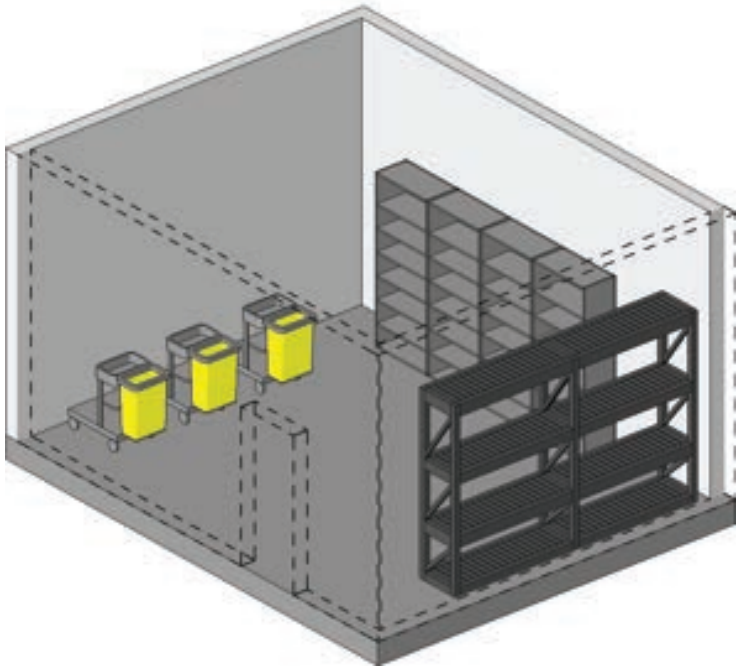
- Trench drains:
  - ✓ Integrated trench drain sump pit with removable covers to central sediment and oil interceptor
  - ✓ Trench drain with removable cover at overhead door, with sediment basket upstream of trap.
  - ✓ Wash Equipment Room: sump with removable covers at an overflow to sediment and oil interceptor
- Water and compressed air connections to wash and reclamation equipment
- Emergency eyewash in Wash Equipment Room
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets mounted at 3'-6" AFF and water protected
  - ✓ Provide waterproof duplex receptacles (four minimum) on walls
  - ✓ All outlets and electrical boxes sealed for a hose down environment
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in Bay (50 fc average) and in Water Reclamation Room (25 fc average)
  - ✓ Fixtures located to illuminate work spaces and around vehicles
- Communications: Paging/intercom system speakers

CLEANING EQUIPMENT STORAGE





FUNCTION

Secure room for storage of vehicle cleaning equipment.

RELATIONSHIP TO OTHER AREAS

- Adjacent to service position

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: finished concrete (recommended)
  - ✓ Walls: Soil and grease resilient, with light color finish
  - ✓ Ceiling: Painted exposed structure
  - ✓ Doors:
    - Personnel door with view panels to meet applicable code exit requirements.
- Mechanical: Provide appropriate balanced cooling, heating, and ventilation (per code)
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

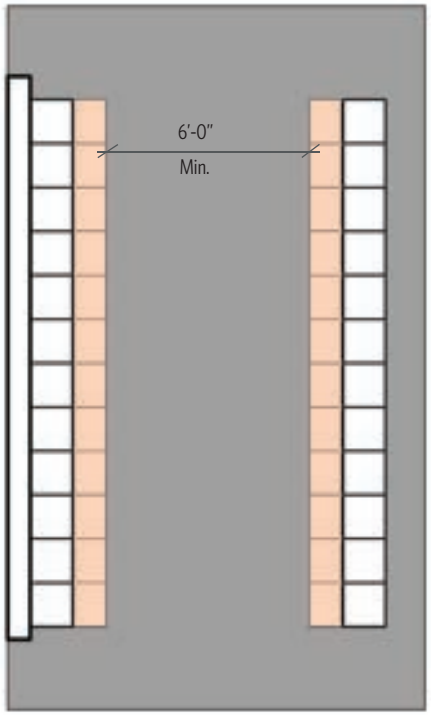
SECTION 5.6: PARTS

GENERAL MODULE: OFFICE AREAS

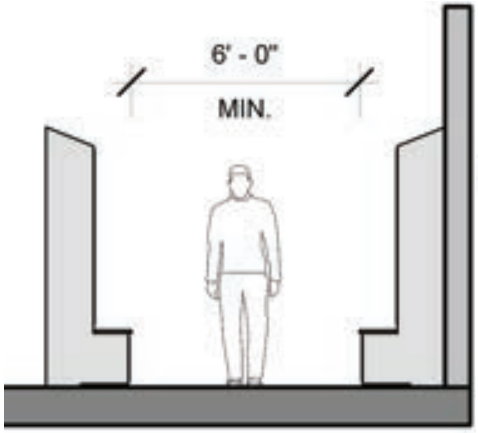
PARTS SUPERVISOR

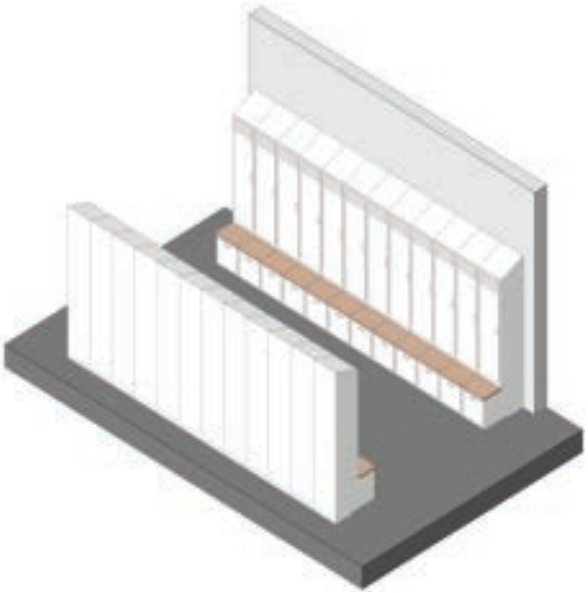
- Reference **Office Module Private Office - 120 sf**
- Adjacent to Parts Storage
- Adjacent to Shopkeepers

PARTS LOCKERS









PARTS

Locker area for each Parts employees. Locker areas must be appropriately sized to meet the needs of Parts staff.

RELATIONSHIP TO OTHER AREAS

- Located within Parts Room

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

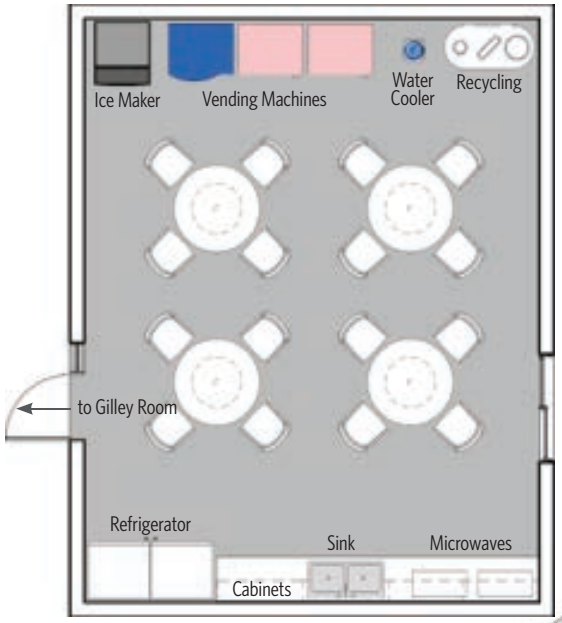
EQUIPMENT/FURNISHINGS

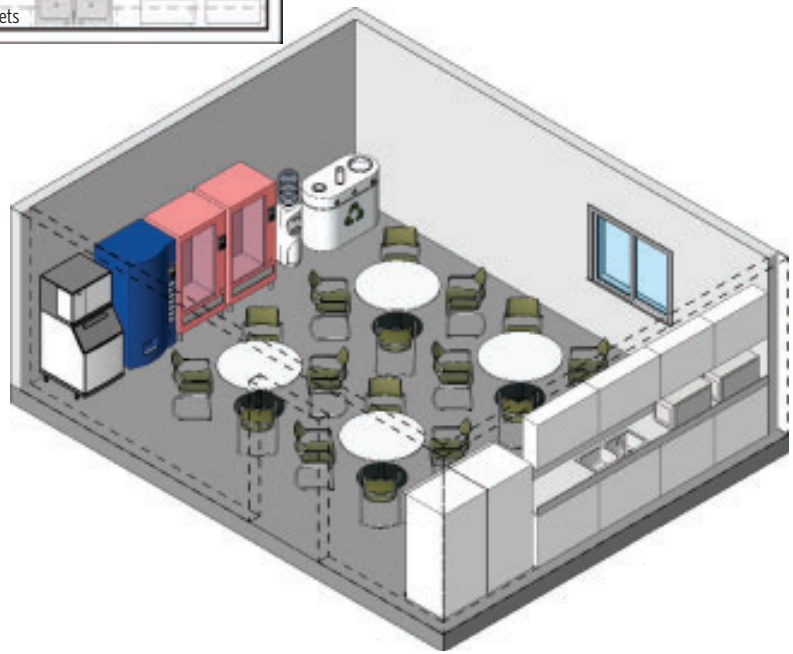
- Standard metal lockers with standalone benches
- Lockers must be ADA compliant and have mirrors
- Locker Dimensions: 24" by 24"
- Lockers to have sloped tops

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
  - ✓ Walls:
    - ○ Tile covering or finished masonry
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (15 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

BREAK ROOM





FUNCTION

Area used for staff to eat, prepare, and store food.

RELATIONSHIP TO OTHER AREAS

- Located within Parts Room.

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

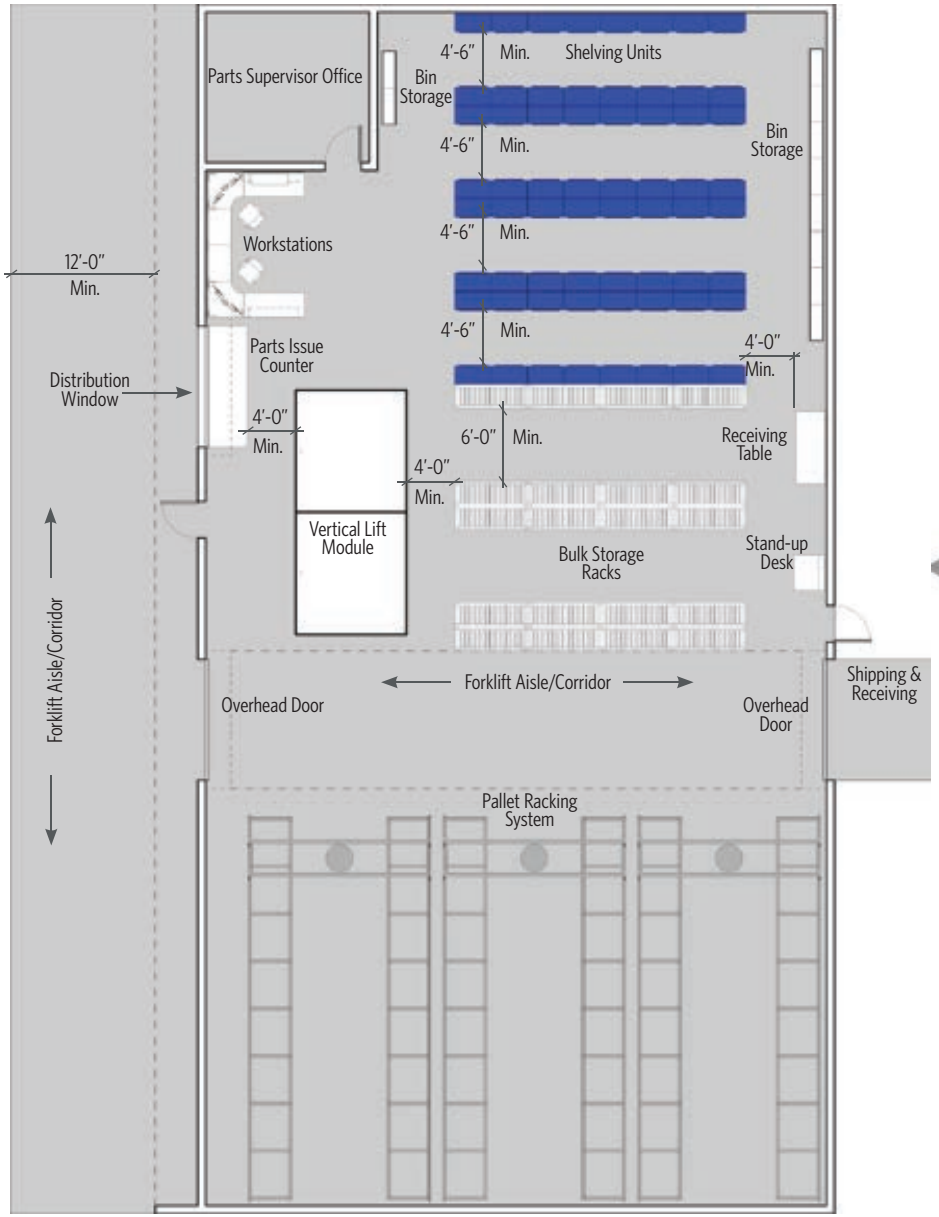
EQUIPMENT/FURNISHINGS

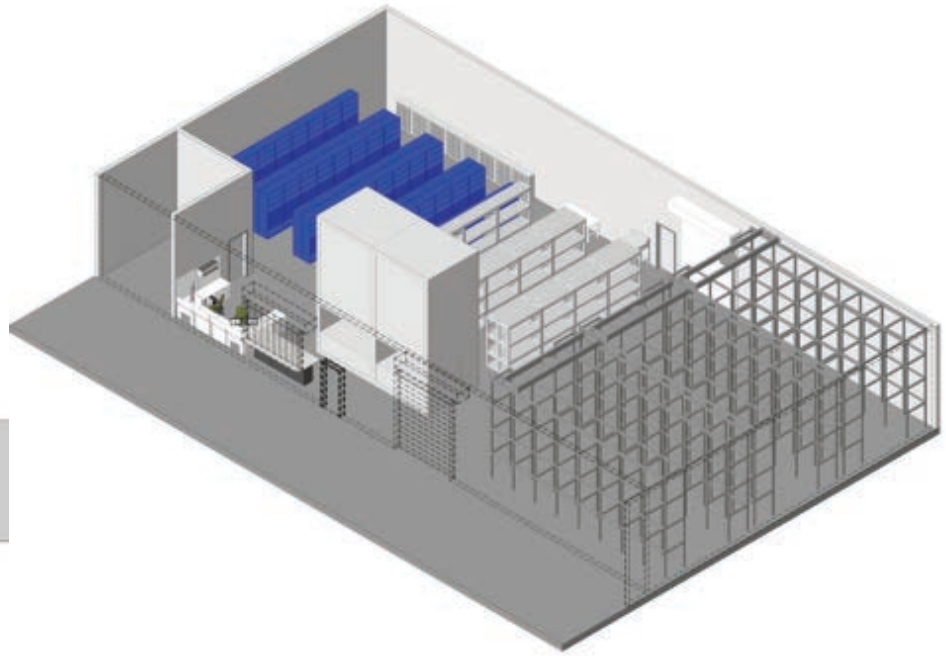
- Counter, upper and lower cabinets, sink with water filter, microwaves, refrigerators, coffee maker, ice maker, water coolers, vending machines, trash/recycling/compost bins, tables, chairs
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Plumbing: Rough-in for equipment
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide three GFCI outlets above the kitchenette counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

PARTS WINDOW/SHOPKEEPER/PARTS STORAGE/SHIPPING AND RECEIVING





PARTS WINDOW/SHOPKEEPER/PARTS STORAGE/SHIPPING AND RECEIVING

FUNCTION

Dedicated secure area for receiving, storage, and issuing of parts, material, and specialized tools.

RELATIONSHIP TO OTHER AREAS

- Access to exterior for deliveries
- Adjacent to Parts Office
- Access from Repair Bays and Shops

CRITICAL DIMENSIONS

- Vertical clearance below mezzanine: 12'-0" (minimal) (if mezzanine is desired)
- Vertical clearance above mezzanine: 15'-0" (minimum)(if mezzanine is desired)
- 20'-0" clear for high bay pallet storage (minimum)
- VLM or stack system can be any desired height

EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Exterior access for deliveries
- Provide Issue Counter with stainless steel top and fire rated rolling overhead door
- Provide staging area for shipping/receiving with an overhead door to exterior of building
- Forklift access
- Parts deliveries should be as functionally separated and as secure as possible in relation to any public accessible and joint development area
- Provide doorbell for deliveries to alert parts room staff

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Exterior overhead door: High-lifting sectional, steel, insulated 10'-0" by 12'-0" with view panels, automatic operator, interior and exterior push button controls with lockout on exterior
  - ✓ Overhead door at Issue Window
  - ✓ Interior overhead door: Coiling steel, 10'-0" by 12'-0", automatic operator, push controls, lockable

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Cooling set point: 74 degrees Fahrenheit
- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment

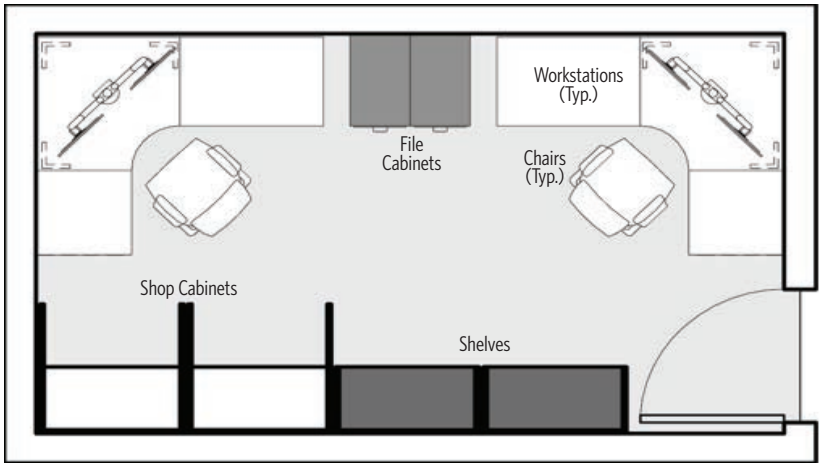
PLUMBING CONSIDERATIONS

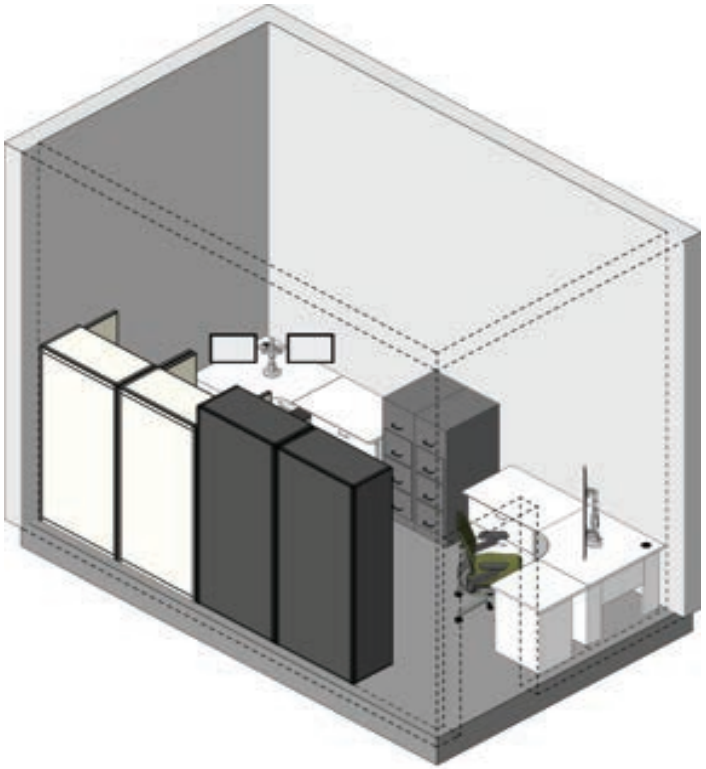
- Water: 3/4" water hose bibb with standard hose bibb at 2'-0" AFF
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommended lighting levels for Parts Window, Shipping/ Receiving, and Shopkeeper (35 fc average) and Storage Area (20 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

RECEIVING OFFICE





FUNCTION

Workstations and storage for Receiving staff.

RELATIONSHIP TO OTHER AREAS

- Access to Parts Window/Shopkeeper/Parts Storage/ Shipping and Receiving/ Dock

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

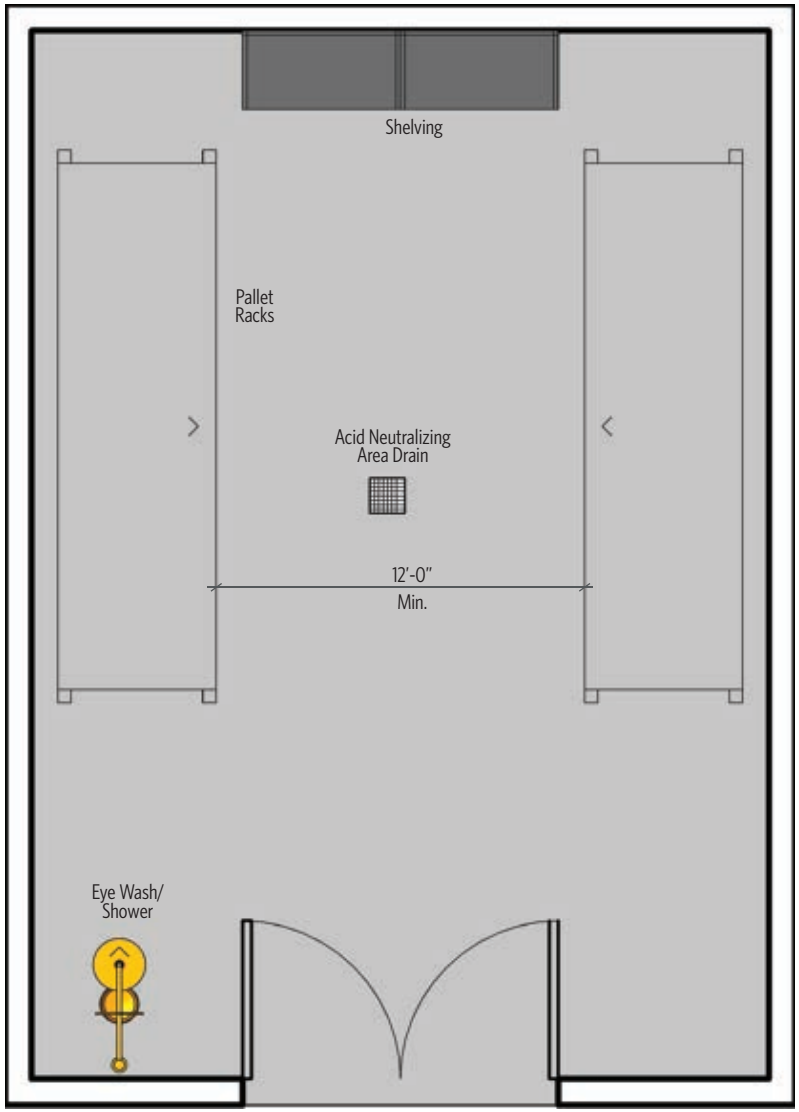
EQUIPMENT/FURNISHINGS

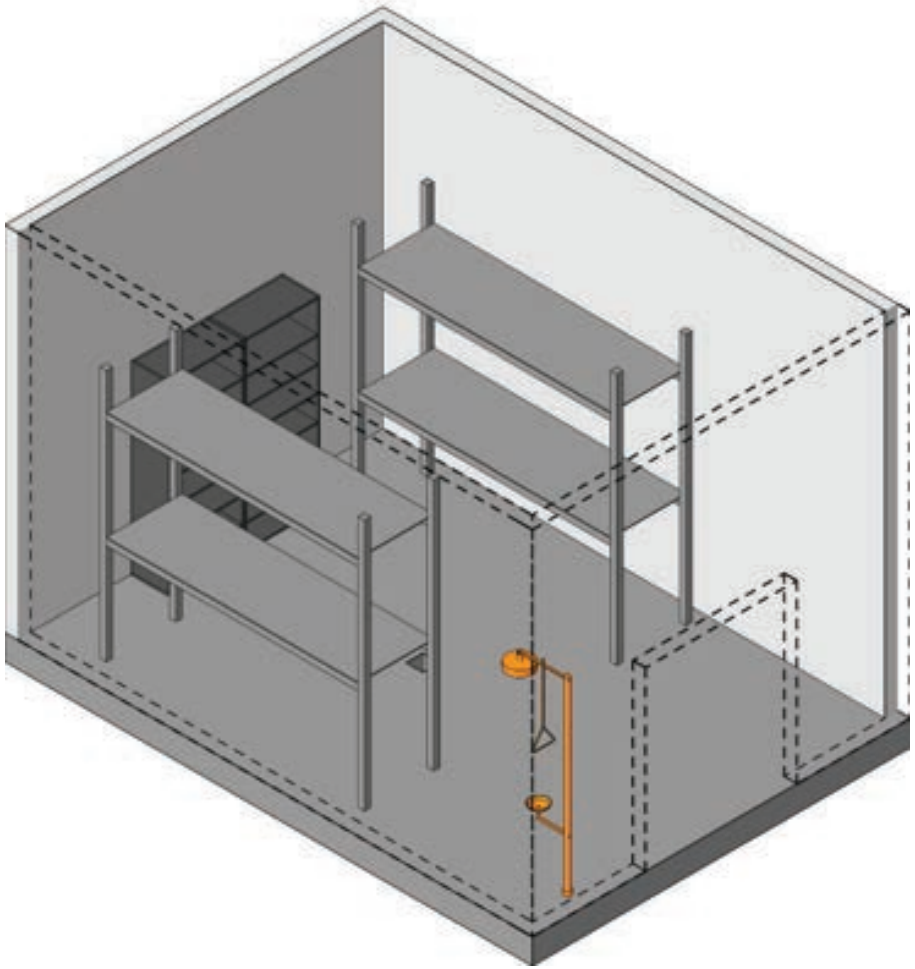
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

BATTERY STORAGE





BATTERY STORAGE

FUNCTION

Enclosed and secure room for storage of trolley and future BEBs batteries and components.

RELATIONSHIP TO OTHER AREAS

- Access from Repair Bays and Shops

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures (minimum)

EQUIPMENT/FURNISHINGS

- Emergency eyewash/shower
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Acoustically and physically separated from other areas to prevent migration of noise, dirt, and fumes

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete, and treated with chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finished concrete or masonry, with polyurea coatings for acid and chemical resistance
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities with light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Double 3'-0" wide doors

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)
- Floor slab designed to accommodate forklift access

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- Exhaust (per code)
- General ventilation (per code)
- As required by equipment

PLUMBING CONSIDERATIONS

- Tempered water: Connection to emergency eye wash/ shower
- Acid neutralizing floor drain and piping to acid dilution tank

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles on walls
  - ✓ Dedicated computer receptacle, adjacent to data conduit on column adjacent to workbench
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum, explosion proof (20 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns at each bay

FIRE SUPPRESSION CONSIDERATIONS

The fire protection and pyrotechnics experts on the detailed design team will be responsible for devising a robust fire protection system for the tire bay and tire shop/storage areas that minimizes risk to the Yard and any joint development above. Review and recommendations by the experts will include, but not be limited to, the location, ventilation, and fire suppression systems for Potrero Yard's tire facilities.

SECTION 5.7: MAINTENANCE - ADMINISTRATION

GENERAL MODULE: OFFICE AREAS

SUPERINTENDENT

- Reference **Office Module Private Office - 224 sf**
- Adjacent to Assistant Superintendent
- Adjacent to Administrative Assistant

ASSISTANT SUPERINTENDENT

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Superintendent
- Adjacent to Administrative Assistant

SENIOR CONTROLLER

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Assistant Superintendent
- Adjacent to Administrative Assistant

ADMINISTRATIVE ASSISTANT

- Reference **Office Module Workstation - 48 sf**
- Adjacent to Superintendent and Assistant Superintendent

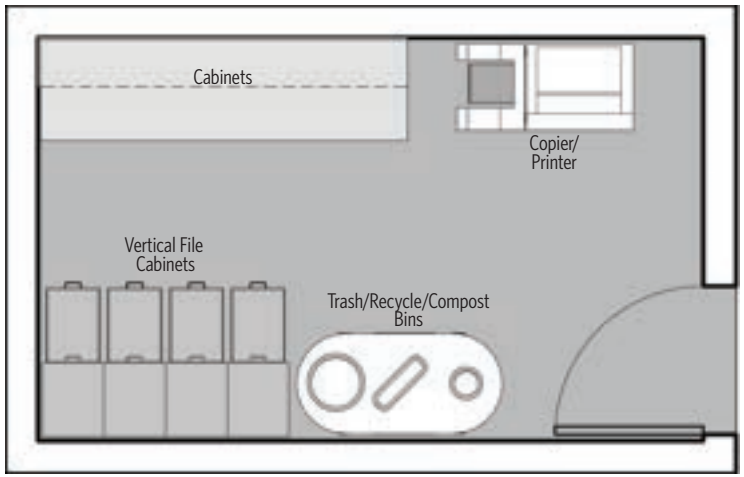
HOTELING - WORKSTATION

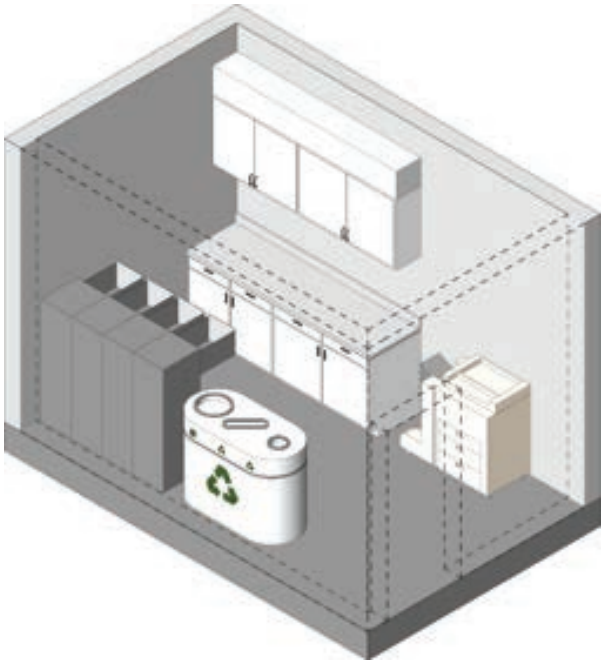
- Reference **Office Module Workstation - 64 sf**
- Located within open office space
- Access to copy/supply

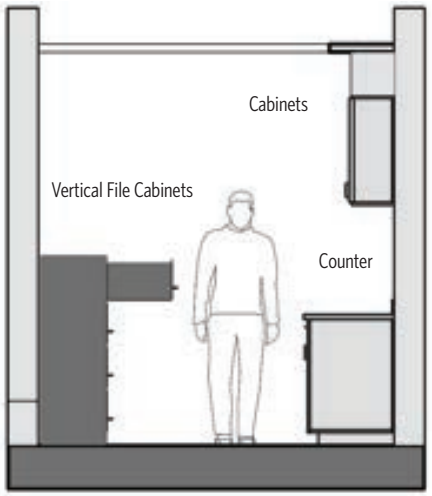
SUPPORT SHOP

- Reference **Office Module Workstation - 64 sf**
- Located within open office space
- Access to copy/supply

COPY/SUPPLY







FUNCTION

Dedicated alcove or room for copier/printer/scanner/fax machine, storage for office supplies, and a work surface.

RELATIONSHIP TO OTHER AREAS

- Access to all office areas

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

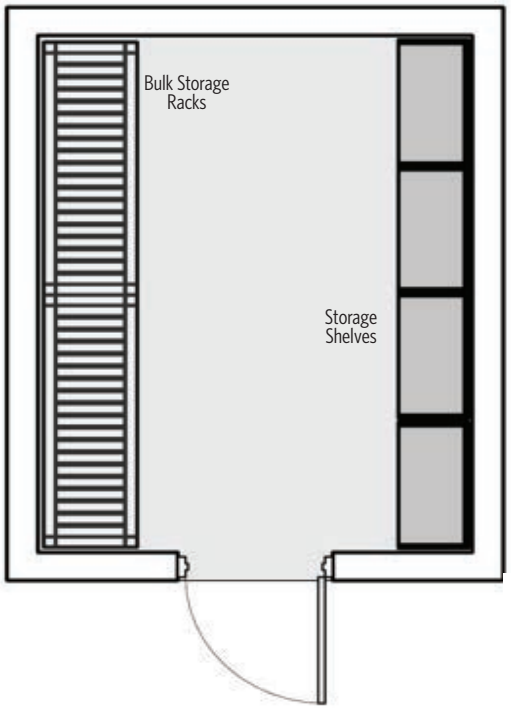
EQUIPMENT/FURNISHINGS

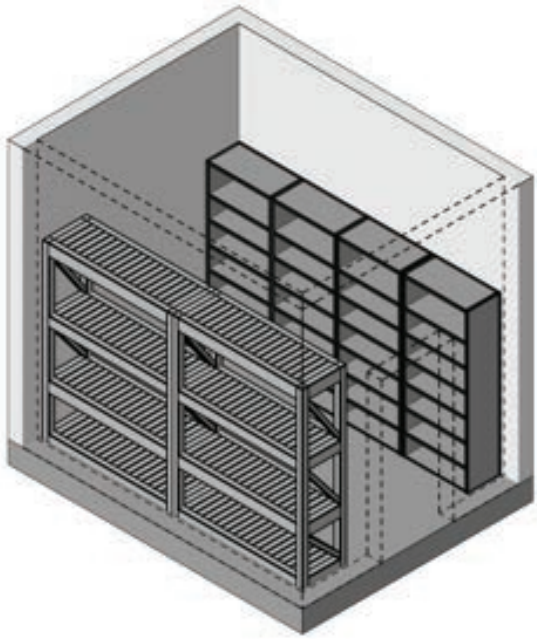
- Copier/printer/scanner/fax machine
- Work surface with cabinets below and above
- Filing cabinets
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide one data outlet with four data ports
  - ✓ Provide box conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

RECORDS STORAGE





FUNCTION

Secure area for the storage of files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

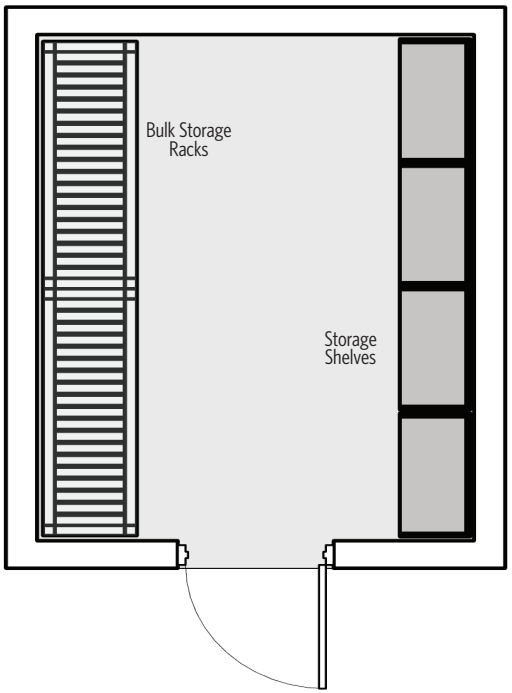
EQUIPMENT/FURNISHINGS

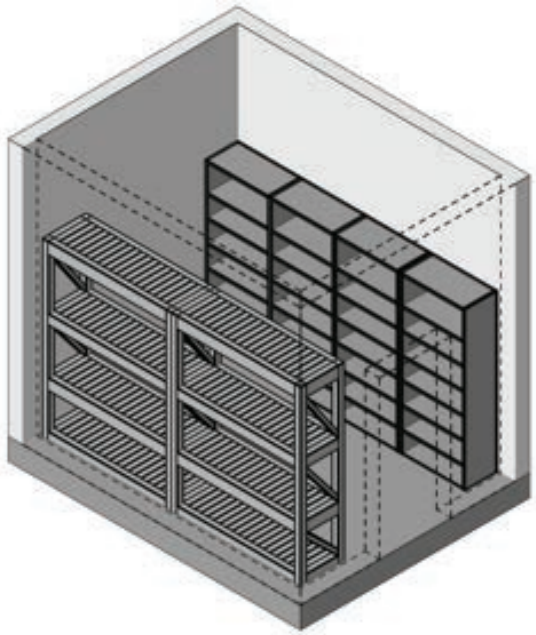
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (35 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

ARCHIVE RECORDS STORAGE





FUNCTION

Secure area for the long term storage of archived files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

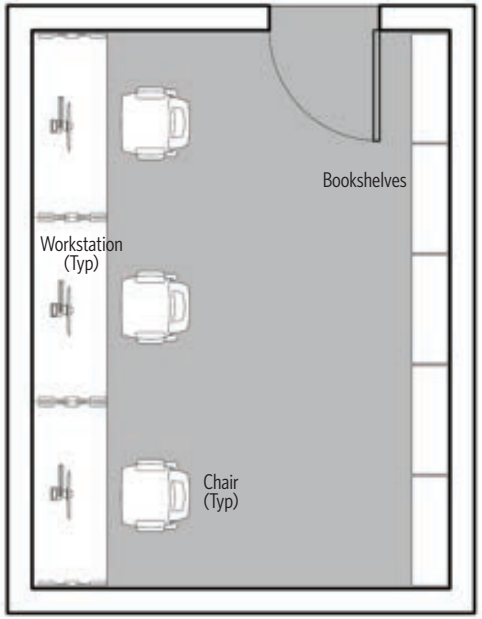
EQUIPMENT/FURNISHINGS

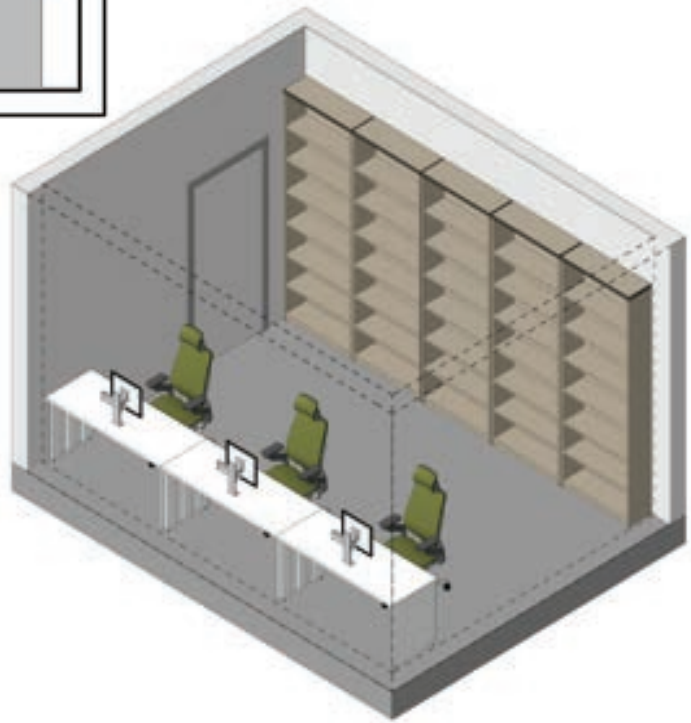
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” door with lockable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

LIBRARY/ONLINE RESOURCES





FUNCTION

Enclosed area for storage and reference of vehicle maintenance reference manuals and materials.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Repair Bays
- Adjacent to Maintenance-Administration open office area

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

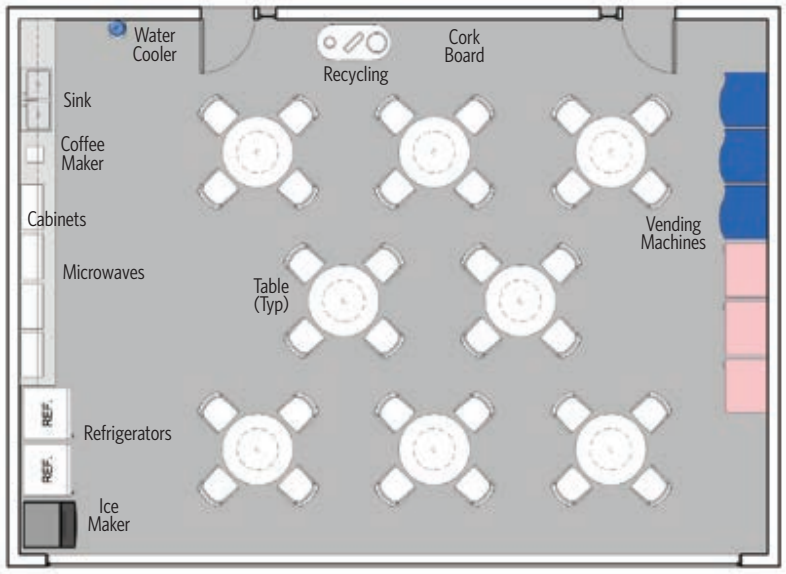
EQUIPMENT/FURNISHINGS

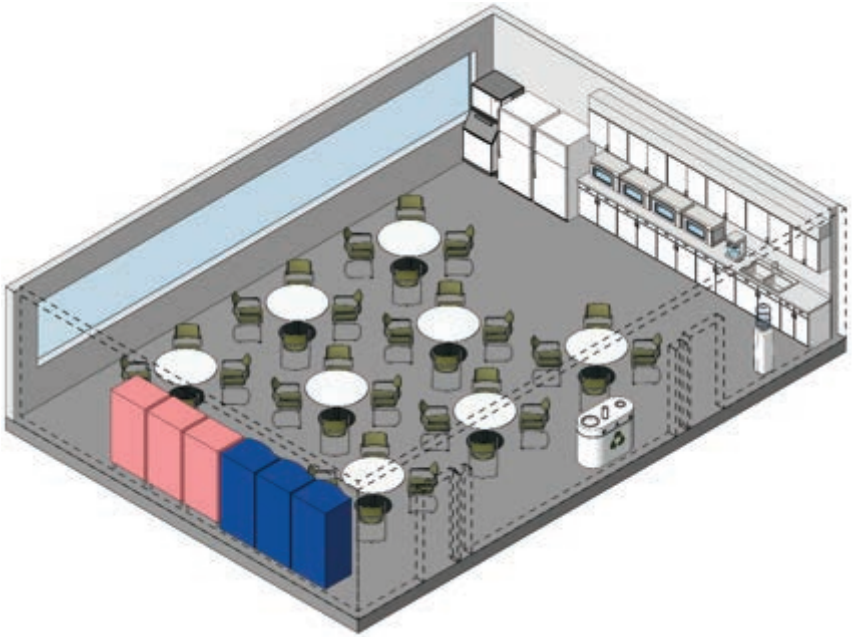
- Workstations
- Bookshelves
- Chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - ○ Electronically secured entry
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc of indirect lighting average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

BREAK ROOM/KITCHENETTE/VENDING





FUNCTION

Enclosed room for use by staff as a break area.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas, repair areas, and Restrooms

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

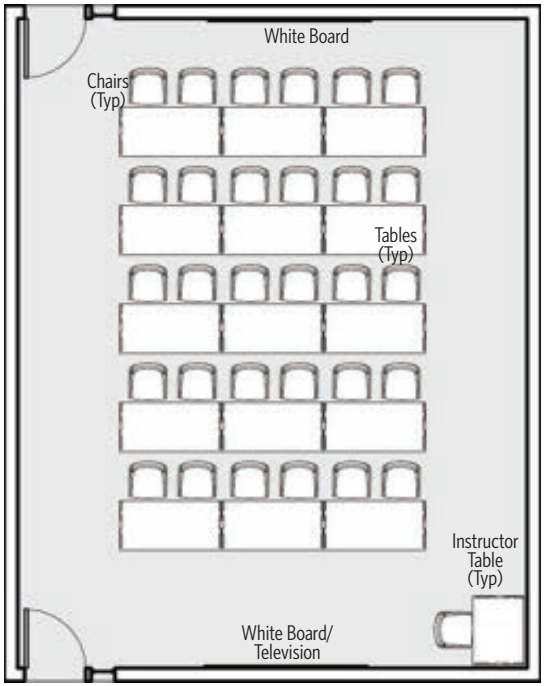
EQUIPMENT/FURNISHINGS

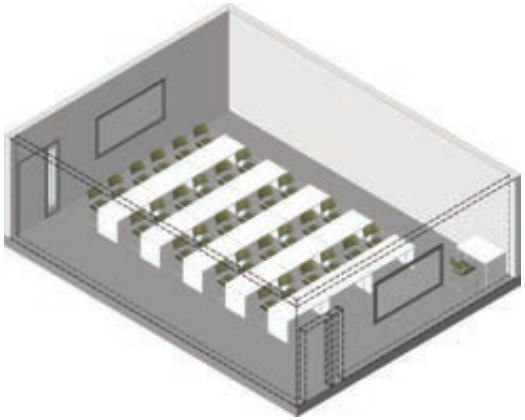
- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, coffee maker, ice maker, water filter, vending machines, water coolers, tables, chairs, trash/recycling/compost bins
- Millwork

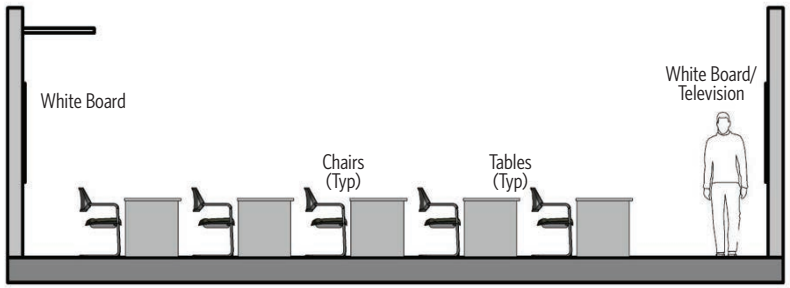
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Plumbing: Rough in for equipment
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide data outlets with four data ports (two minimum)
  - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

TRAINING ROOM







FUNCTION

Large room for staff to participate in training activities. This space will also be available as a Conference Room, with training as the primary activity.

RELATIONSHIP TO OTHER AREAS

- Accessible by Maintenance staff
- Adjacent to Maintenance Office area

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

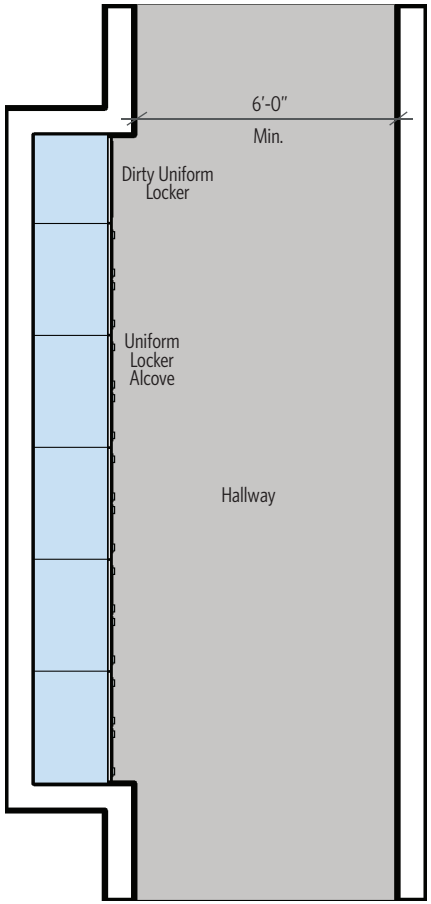
EQUIPMENT/FURNISHINGS

- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Whiteboard/Television
- Overhead projector
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Resilient floor covering with base (recommended)
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Power:
  - ✓ LED lighting in accordance with IES recommendations (35 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

UNIFORM ALCOVE





FUNCTION

Co-ed locker area with an alcove for vendors to drop off and pick up uniforms (changing areas are located in the respective male/female restrooms).

RELATIONSHIP TO OTHER AREAS

- Accessible from Men's and Women's Lockers/Showers/Restroom
- Adjacent to an exterior door for vendor pickup/drop off

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

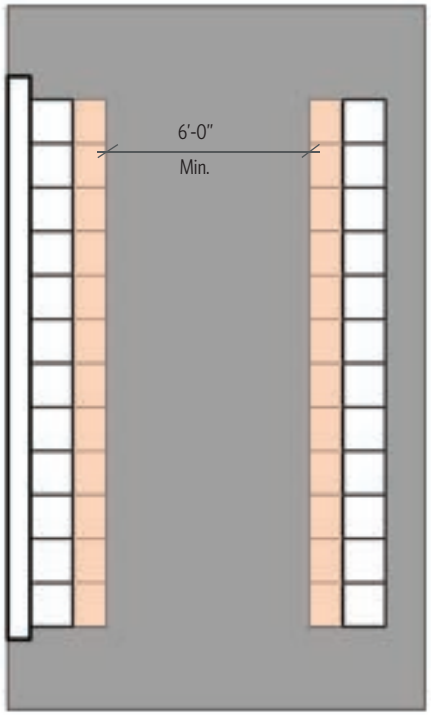
EQUIPMENT/FURNISHINGS

- Vendor provided well-ventilated uniform lockers, bin for dirty uniforms

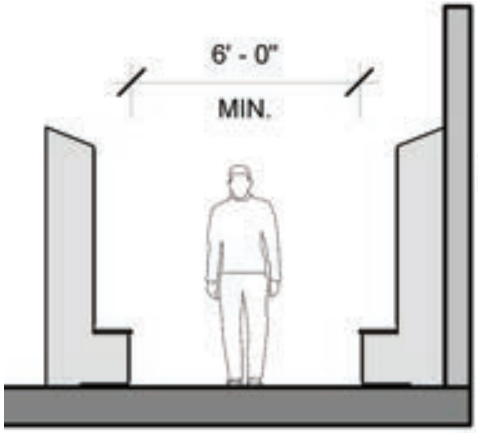
DESIGN FEATURES

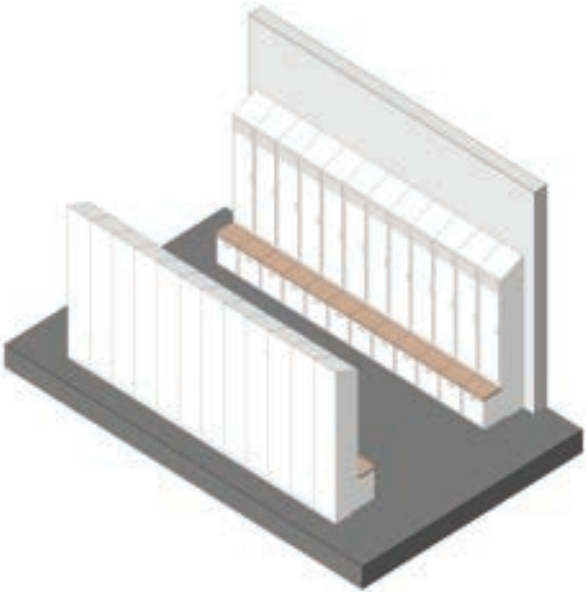
- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power: LED lighting in accordance with IES recommendation (15 fc average)
- Lighting: Dimmable, indirect lighting with occupancy sensor

MEN'S AND WOMEN'S LOCKERS









FUNCTION

Locker area for each male and female Bus Maintenance employees. Locker areas must be appropriately sized to meet the needs of Maintenance staff.

RELATIONSHIP TO OTHER AREAS

- Access by Repair and Shop Areas
- Located within each Men's and Women's Restrooms

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

- Standard metal lockers with standalone benches
- Lockers must be ADA compliant and have mirrors
- Locker Dimensions: 24" by 24"
- Lockers to have sloped tops

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
  - ✓ Walls:
    - ○ Tile covering or finished masonry
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (15 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

SECTION 5.8: OPERATIONS - ADMINISTRATION

GENERAL MODULE: OFFICE AREAS

SUPERINTENDENT

- Reference **Office Module Private Office - 224 sf**
- Adjacent to Assistant Superintendent
- Adjacent to Administrative Assistant

ASSISTANT SUPERINTENDENT

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Administrative Assistant
- Adjacent to Superintendent

TRAINER

- Reference **Office Module Workstation - 64 sf**
- Access to Training Access Areas

YARD STARTER OFFICE

- Reference **Office Module Private Office - 120 sf**
- Adjacent to facility exit
- Views of buses coming off ramps through facility to exit

DISPATCH/RECEIVER

- Reference **Office Module Workstation - 64 sf**
- Within the Operator check-in
- Adjacent to Break Room
- Adjacent to restrooms

ADMINISTRATIVE ASSISTANT

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Superintendent and Assistant Superintendent

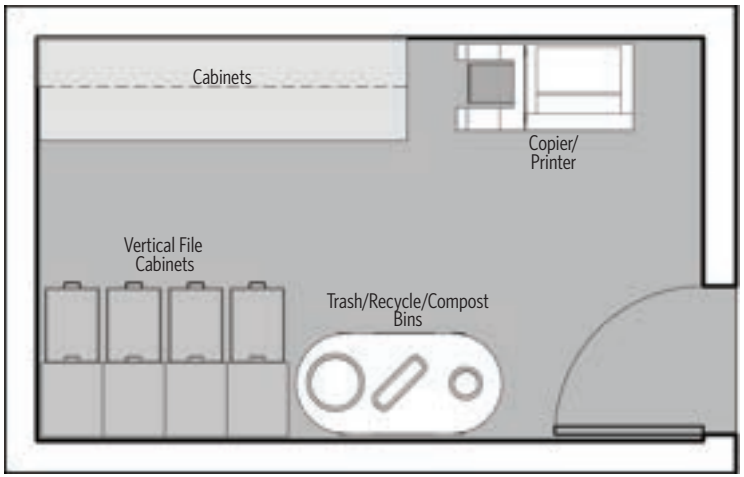
HOTELING - WORKSTATION

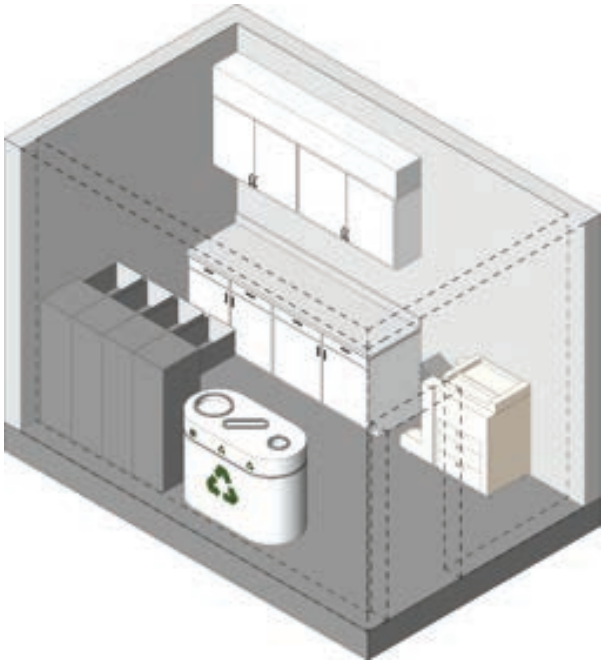
- Reference **Office Module Workstation - 64 sf**
- Located within open office space
- Access to Copy/Supply

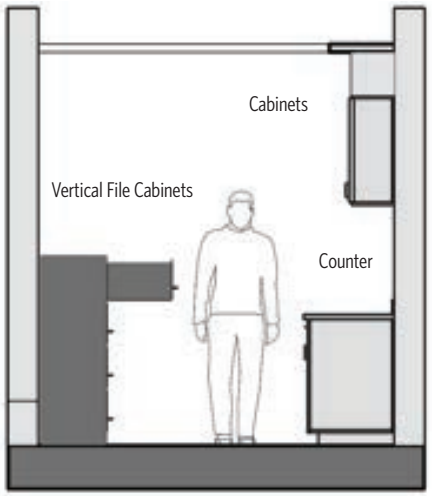
UNION SHARED OFFICE

- Reference **Office Module Private Office - 224 sf**
- Accessible by union staff

COPY/SUPPLY







FUNCTION

Dedicated alcove or room for copier/printer/scanner/fax machine, storage for office supplies, and with a work surface.

RELATIONSHIP TO OTHER AREAS

- Access to all office areas

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

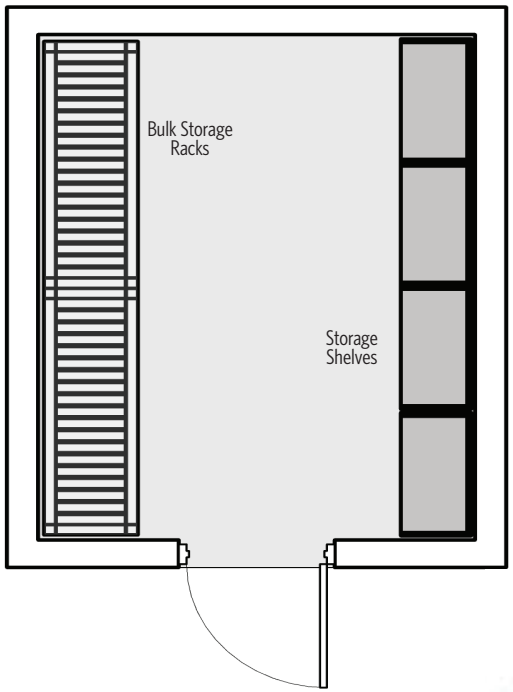
EQUIPMENT/FURNISHINGS

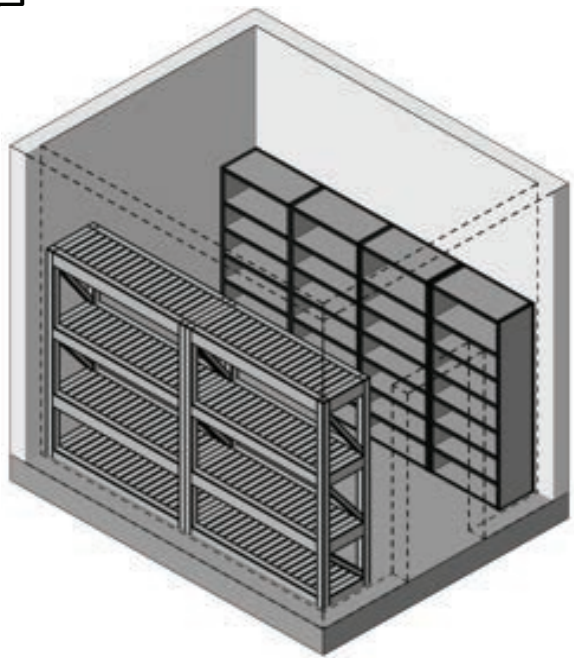
- Copier/printer/scanner/fax machine
- Work surface with cabinets below and above
- Filing cabinets
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide one data outlet with four data ports
  - ✓ Provide box conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

RECORDS STORAGE





FUNCTION

Secure area for the long term storage of archived files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

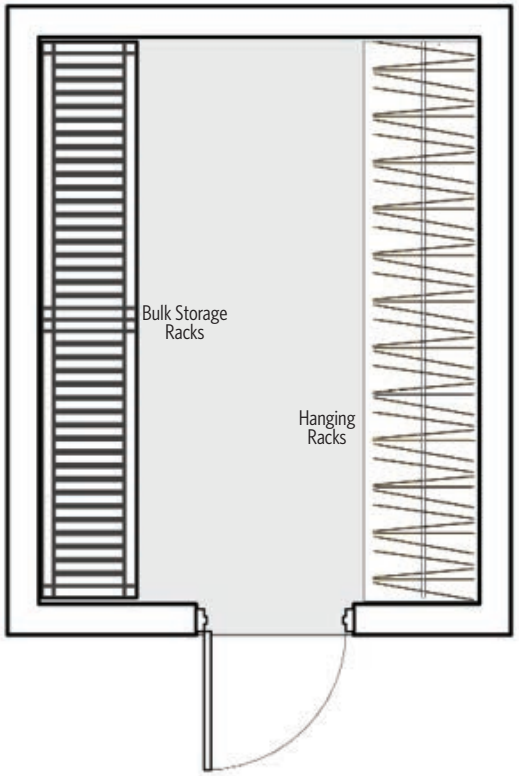
EQUIPMENT/FURNISHINGS

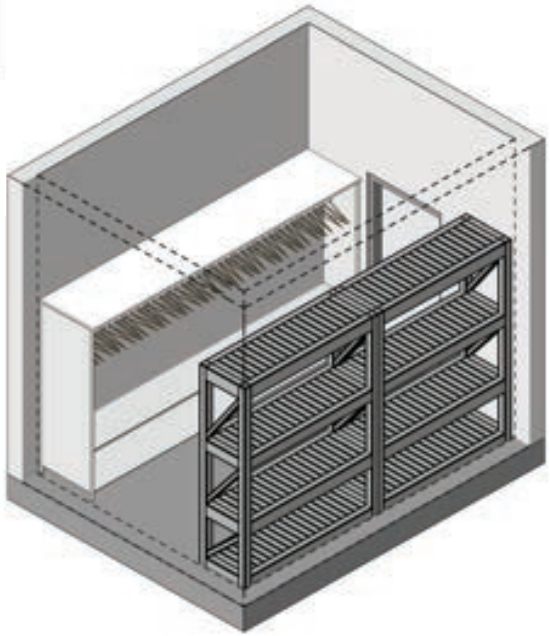
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (30 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

UNIFORM STORAGE





FUNCTION

Enclosed room for storage of Operator uniforms.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Operator Check-in

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

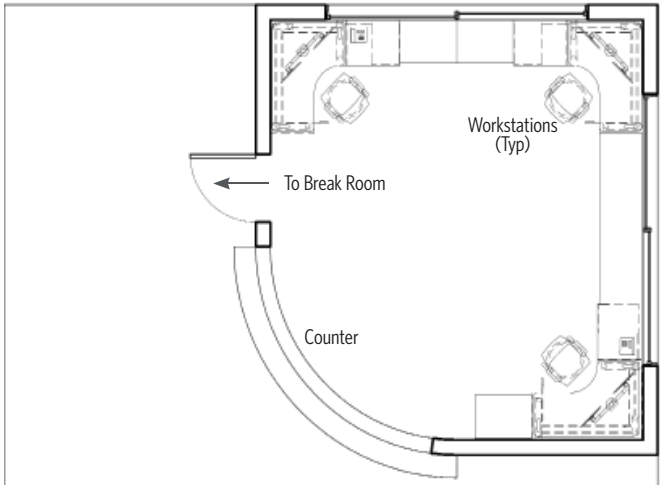
EQUIPMENT/FURNISHINGS

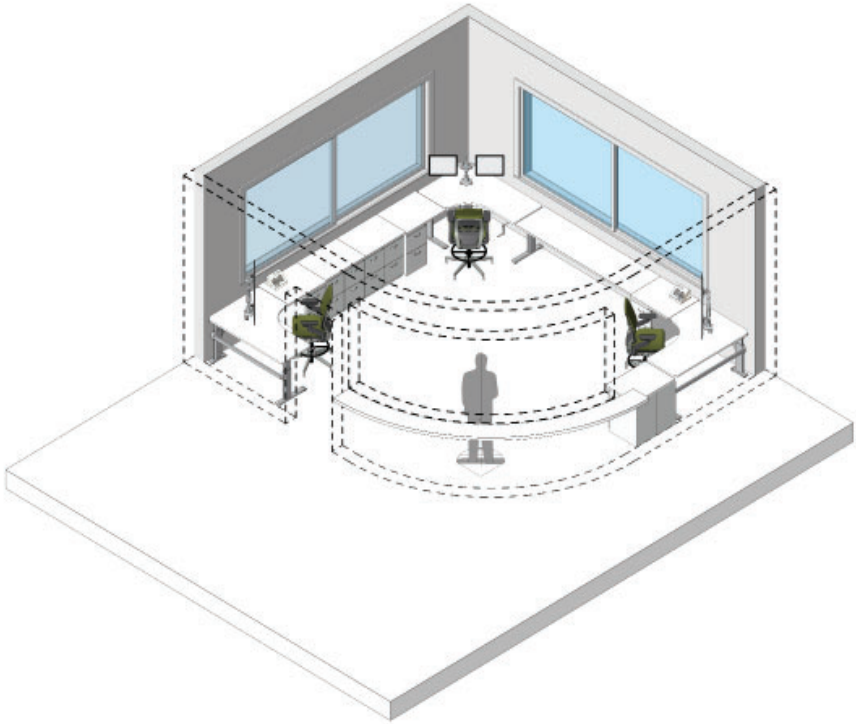
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with loadable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendation (15 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensor

OPERATOR CHECK-IN/ DISPATCH/ RECEIVER





FUNCTION

Area for Operators to report, receive information, and write reports.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room
- Adjacent to Dispatch/Receiver

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

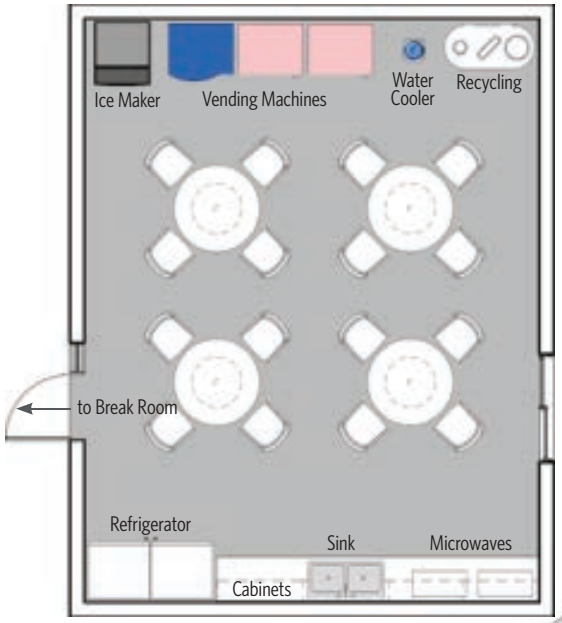
EQUIPMENT/FURNISHINGS

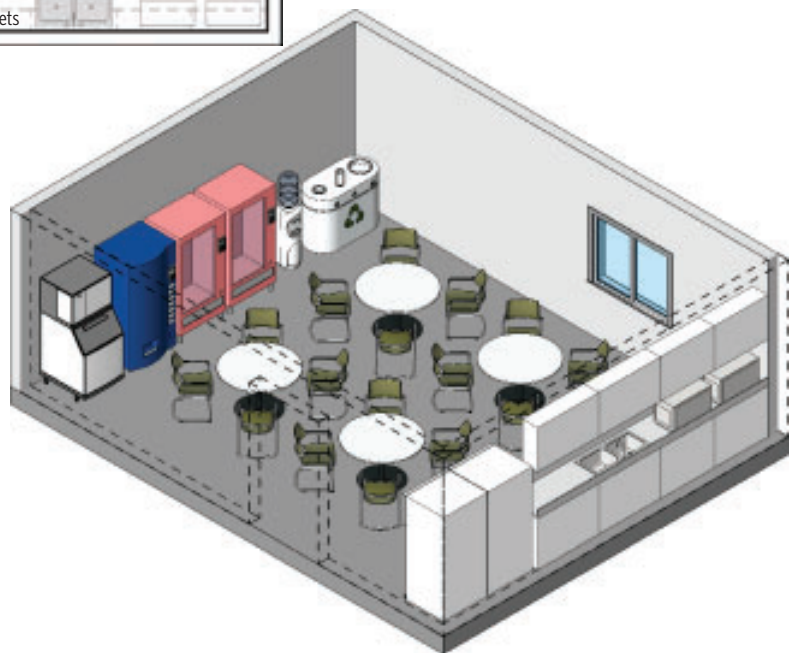
- Computer workstations
- Bulletin board
- Standing counter height, with portion of the counter at ADA accessible height

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc of indirect lighting average, no glare)
  - ✓ Provide general purpose duplex receptacles (three minimum)
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

KITCHENETTE/VENDING





FUNCTION

Area used for staff to eat, prepare, and store food.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

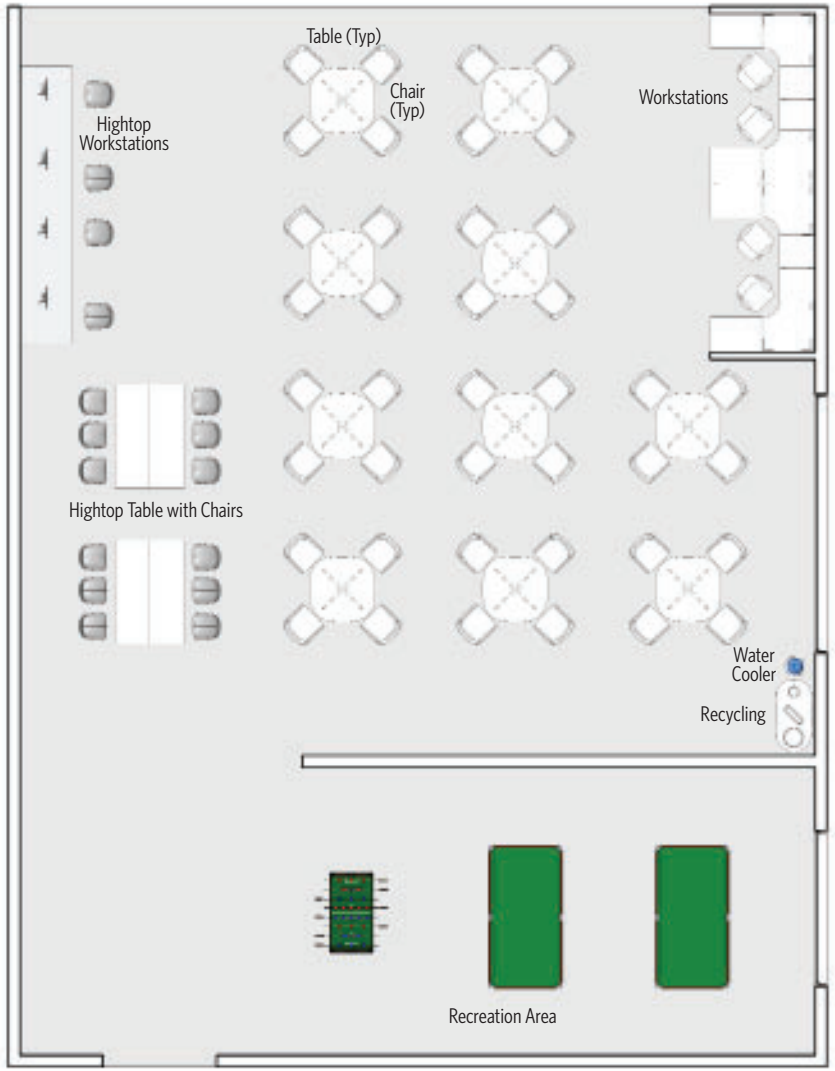
EQUIPMENT/FURNISHINGS

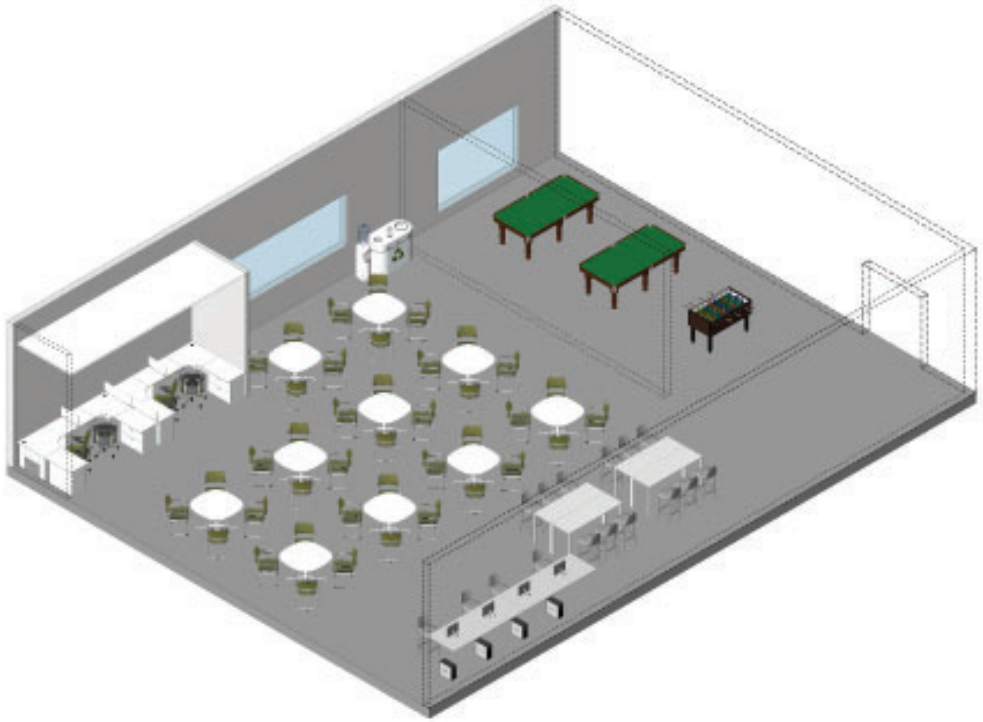
- Counter, upper and lower cabinets, sink with water filter, microwaves, refrigerators, coffee maker, ice maker, water coolers, vending machines, trash/recycling/compost bins, tables, chairs
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Plumbing: Rough-in for equipment
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide three GFCI outlets above the kitchenette counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

BREAK ROOM/RECREATION AREA





BREAK ROOM/RECREATION AREA

FUNCTION

Area for Operators to gather, take breaks, and relax between shifts.

RELATIONSHIP TO OTHER AREAS

- Connected to Kitchenette/Vending
- Adjacent to:
  - ✓ TV Room
  - ✓ Quiet Room
  - ✓ Restrooms
  - ✓ Lockers
  - ✓ Mailboxes
  - ✓ Operator Check-In
  - ✓ Dispatch/Receiver

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

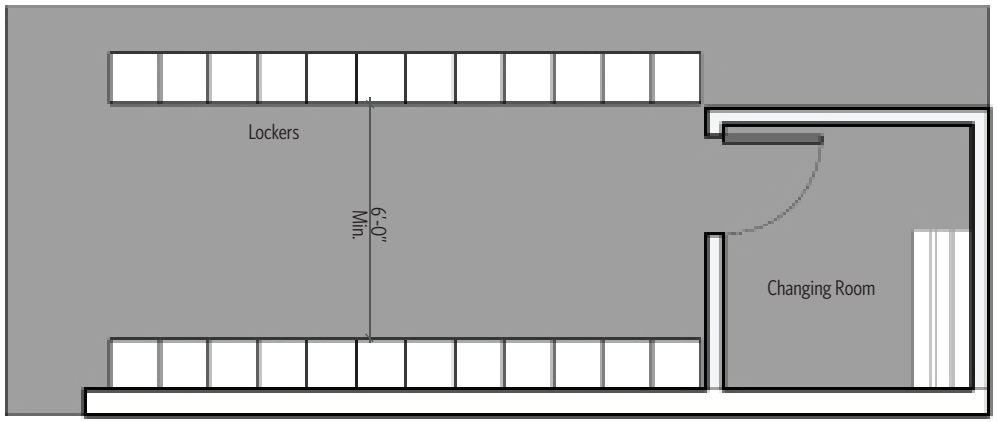
EQUIPMENT/FURNISHINGS

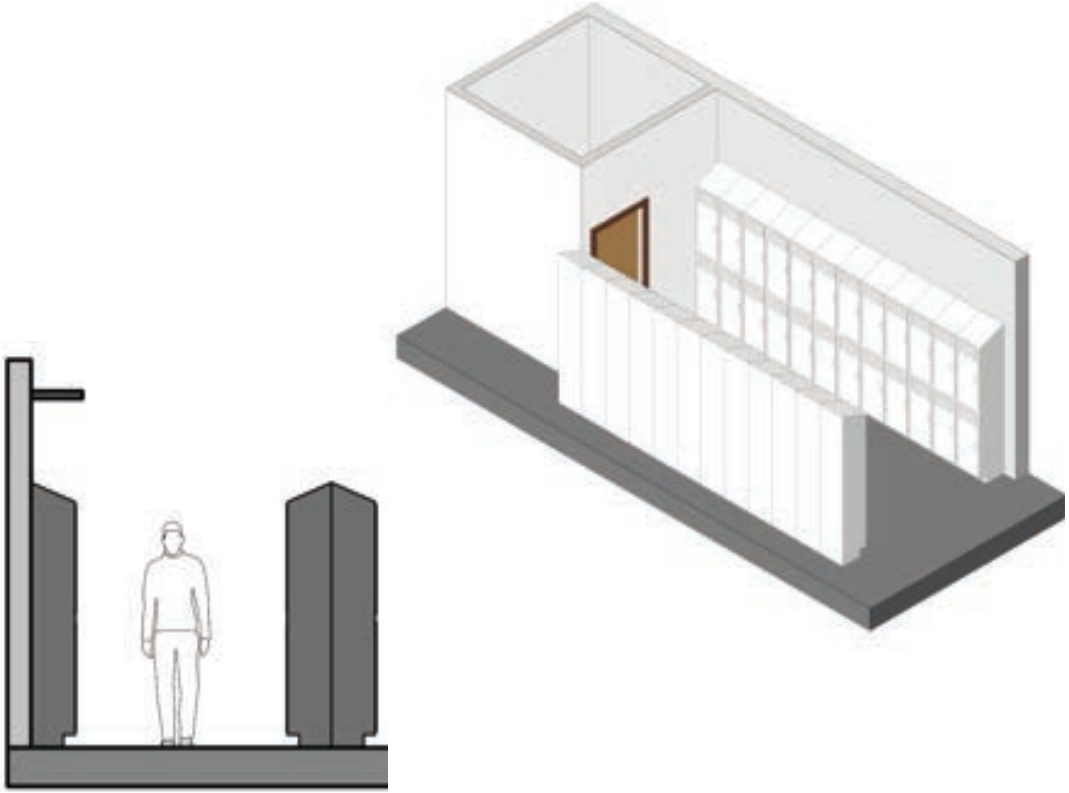
- Computer workstations
- Tables and chairs (no tables with attached chairs)
- Message and information televisions
- Chairs
- End tables
- Bulletin boards
- Recreation equipment
- Mailboxes
- Pool tables
- Alcove with workstation for incident reporting
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (30 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide one data outlet with four data ports at each workstation
  - ✓ Provide box and conduit rough-ins to three other locations in room
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

LOCKERS





FUNCTION

Co-ed locker room with alcove for Operators to store personal gear and clothing in half-height lockers (Single person occupancy private changing area within locker room and private changing areas in respective restrooms as well).

RELATIONSHIP TO OTHER AREAS

- Connected to Break Room
- Adjacent to Restroom/Showers

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

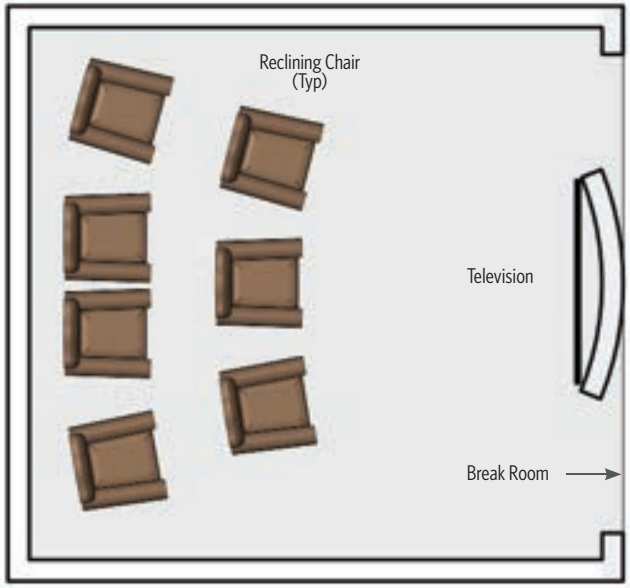
EQUIPMENT/FURNISHINGS

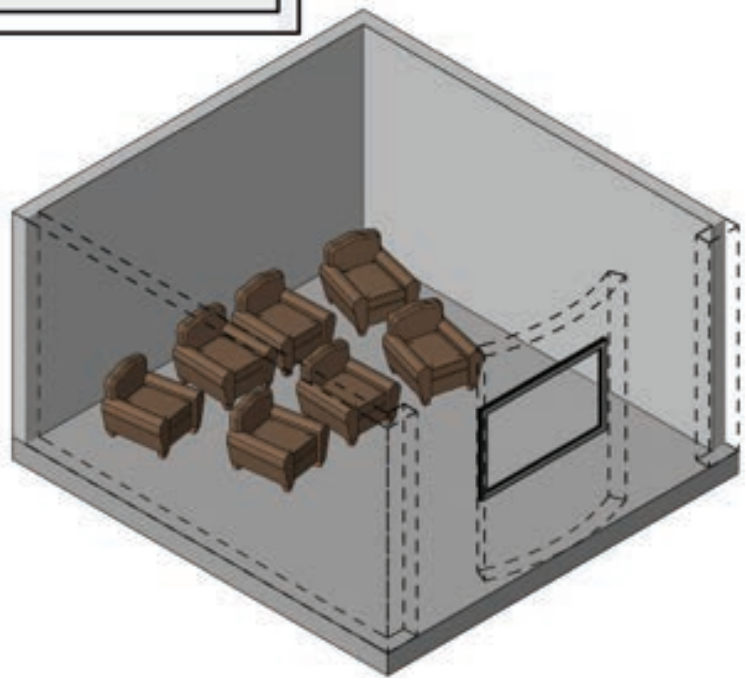
- Heavy duty, two tier, 3'-0", well-ventilated, half-height lockers; one each per Operator assigned to the facility
- Locker dimensions: 12" by 36"
- Lockers to have slant tops

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient covering or finished concrete (recommended)
  - ✓ Walls:
    - ○ Tile covering or painted masonry (recommended)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

TV ROOM





FUNCTION

Enclosed room for Operators to watch television between, before, and after shifts.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

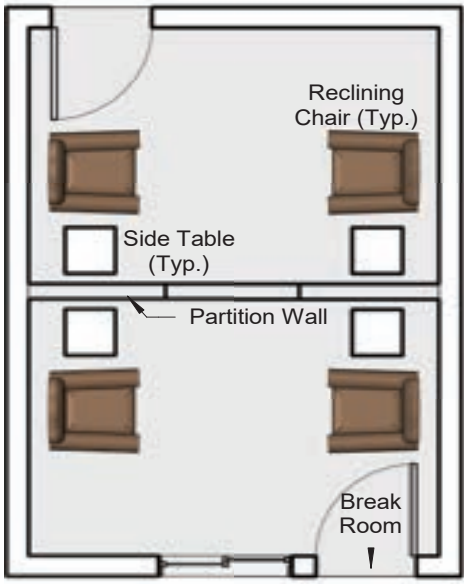
EQUIPMENT/FURNISHINGS

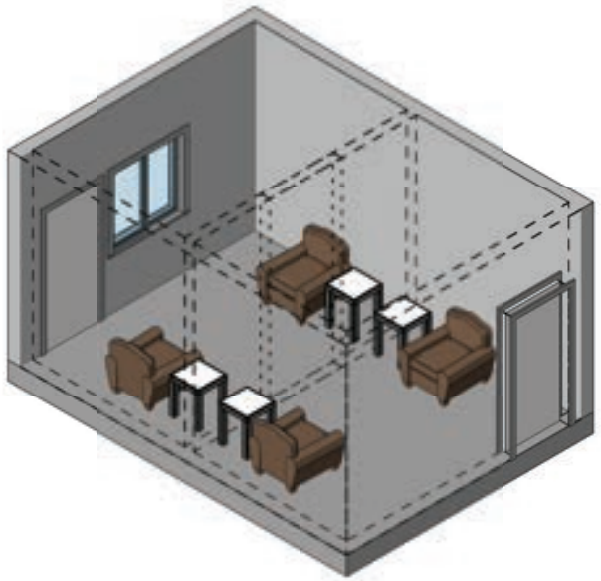
- Television
- Chairs
- End tables
- Table and chairs

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
- Daylighting: No exterior openings
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (15 fc indirect lighting average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide one data outlet with four data ports at back of TV
  - ✓ Provide coax cable to building MPOE
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

QUIET ROOM





FUNCTION

Enclosed rooms for Operators to relax or sleep in a quiet environment between, before, and after shift.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

- Chairs
- Side tables

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Daylighting: No exterior openings
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Electrical:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc indirect lighting average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting Control:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

SECTION 5.9: TRANSIT SERVICES (MRO)

GENERAL OFFICE MODULES

OPERATIONS MANAGER

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Operations Manager
- Adjacent to Junior Management Assistant

OPERATIONS MANAGER

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Operations Manager
- Adjacent to Junior Management Assistant

TRANSIT MANAGER II

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Transit Operations Specialist
- Adjacent to Junior Management Assistant

TRANSIT OPERATIONS SPECIALIST

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Transit Manager II
- Adjacent to Junior Management Assistant

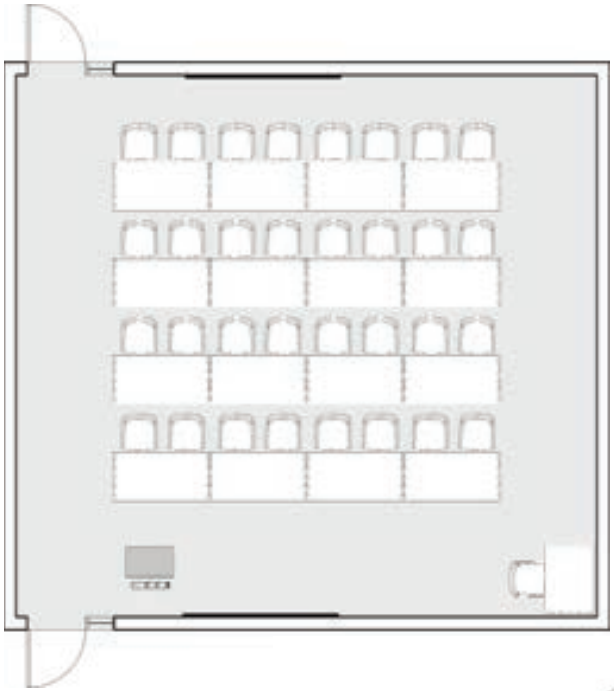
MRO, STREET OPERATORS

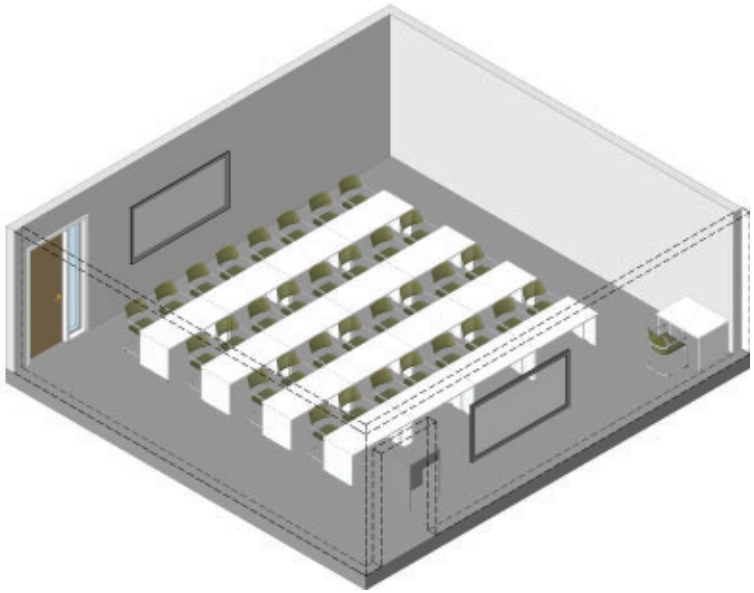
- Reference **Office Module Workstation - 30 sf**
- Adjacent to Office Areas

JUNIOR MANAGEMENT ASSISTANT

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Operations Manager
- Adjacent to Operations Manager

CONFERENCE ROOM





FUNCTION

Room to accommodate up to ten people for meetings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

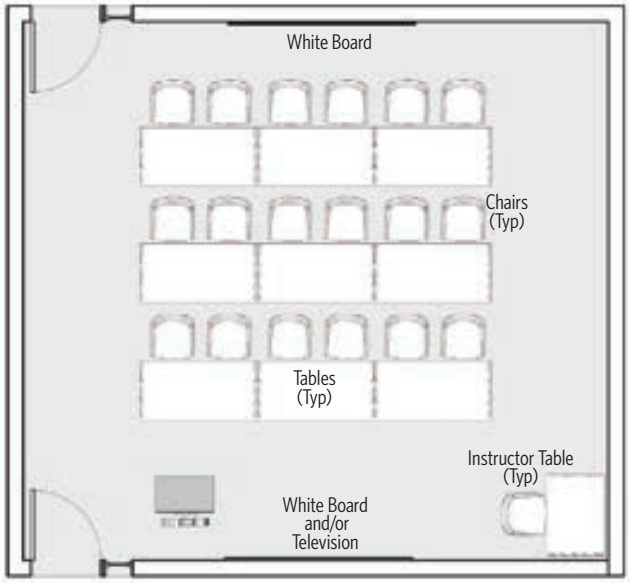
EQUIPMENT/FURNISHINGS

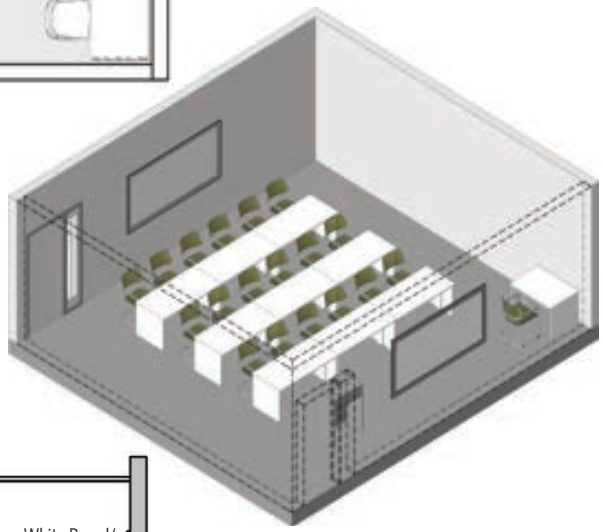
- Table
- Chairs
- White board and/or television
- Millwork

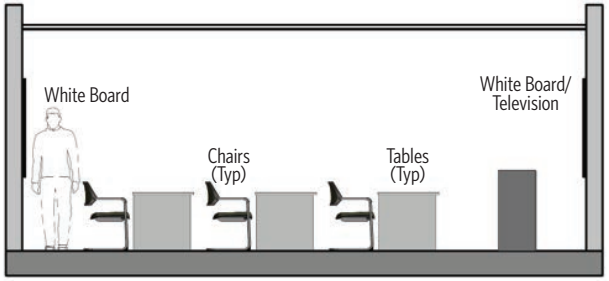
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations (30 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

TRAINING ROOM







FUNCTION

Room to accommodate up to 20 people for meetings or trainings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

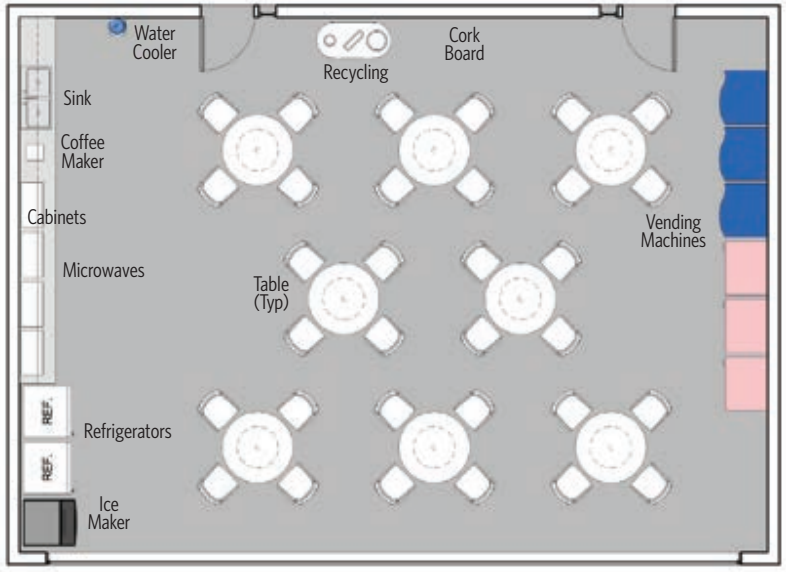
EQUIPMENT/FURNISHINGS

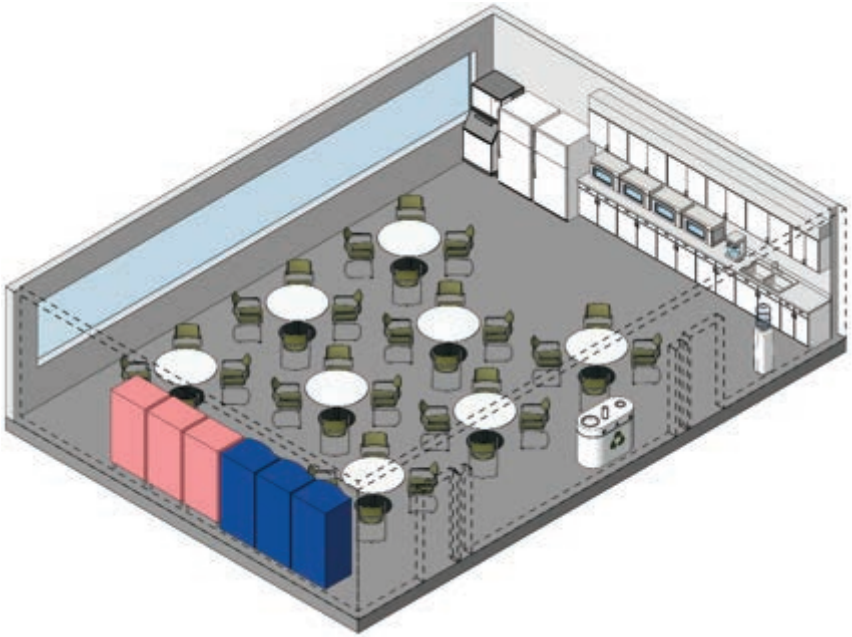
- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- White board and/or television
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" doors with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations (30 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

BREAK ROOM





FUNCTION

Enclosed room used as a break area for staff.

RELATIONSHIP TO OTHER AREAS

- Centrally located
- Access to all office areas, repair areas, and Restrooms

CRITICAL DIMENSIONS

- 9’ -0” vertical clearance (minimum)

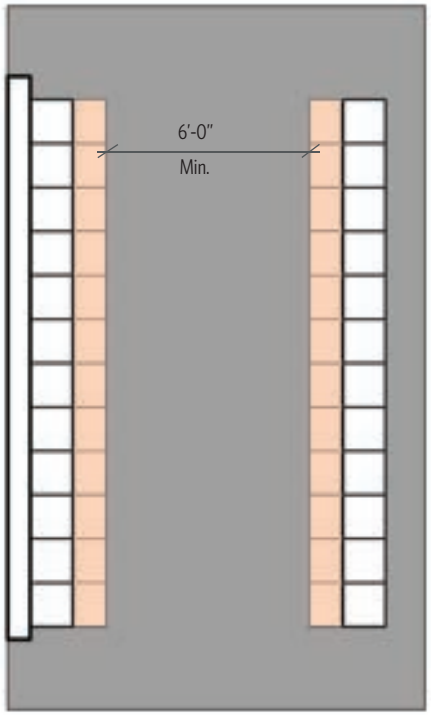
EQUIPMENT/FURNISHINGS

- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, coffee maker, ice maker, water filter, vending machines, water coolers, tables, chairs, trash/recycling/compost bins
- Millwork

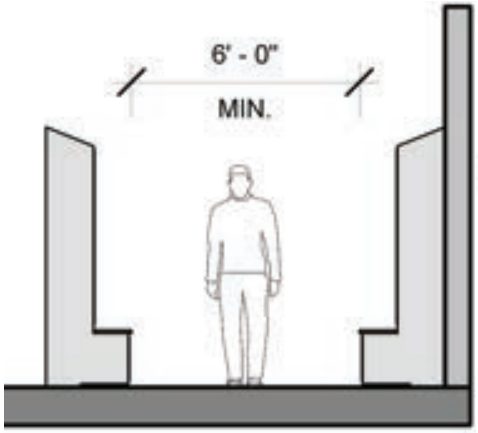
DESIGN FEATURES

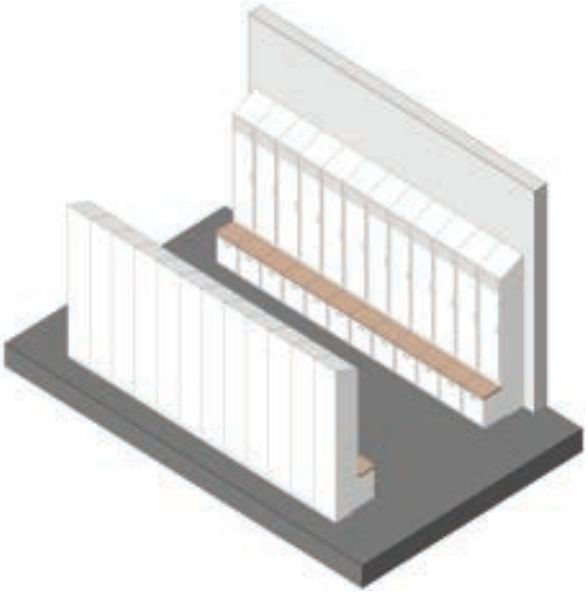
- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Plumbing: Rough in for equipment
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide data outlets with four data ports (two minimum)
  - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

LOCKERS









FUNCTION

Locker area for each male and female Transit Services (MRO) employees. A few changing areas behind curtain or other partition will be provided.

RELATIONSHIP TO OTHER AREAS

- Access by Repair and Shop Areas
- Located within each Men's and Women's Restrooms

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

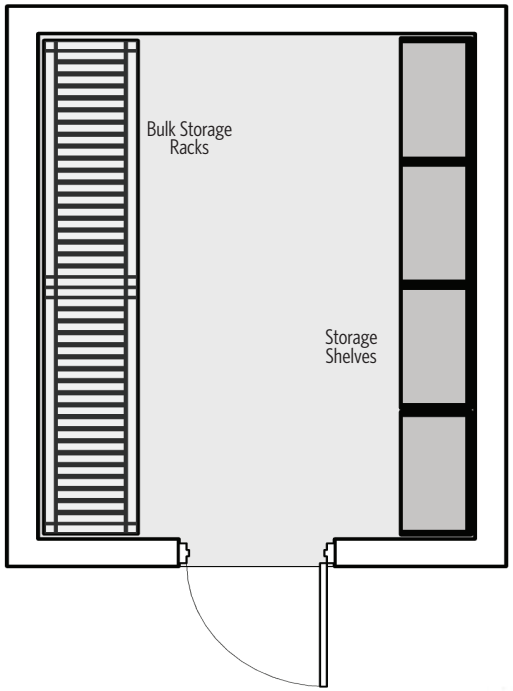
EQUIPMENT/FURNISHINGS

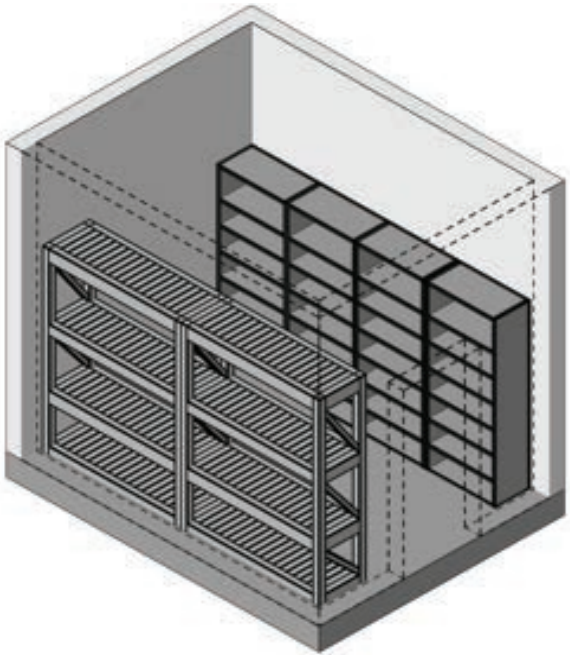
- Standard metal lockers with standalone benches
- Lockers must be ADA compliant and have mirrors
- Locker Dimensions: 24" by 24"
- Lockers to have sloped tops

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
  - ✓ Walls:
    - Tile covering or finished masonry
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (15 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

STORAGE





FUNCTION

Dedicated secure storage for Transit Service supplies.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

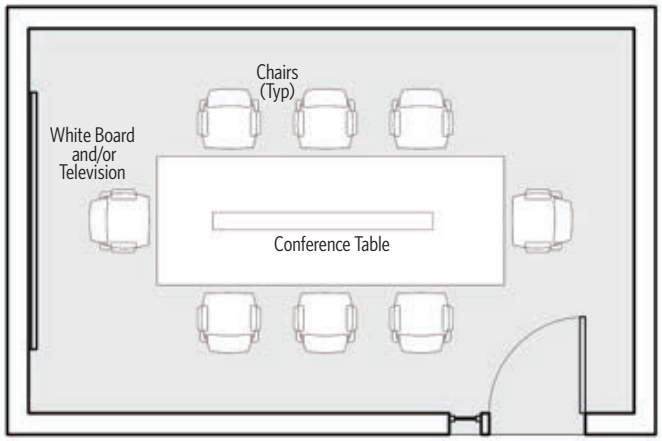
- Shelving
- Racking

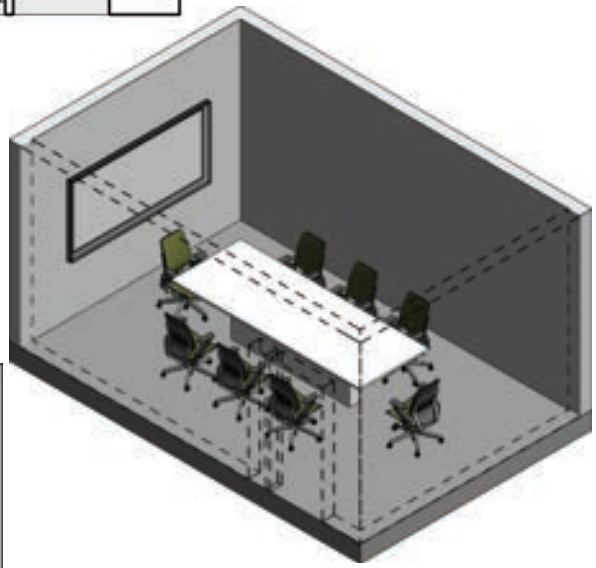
DESIGN FEATURES

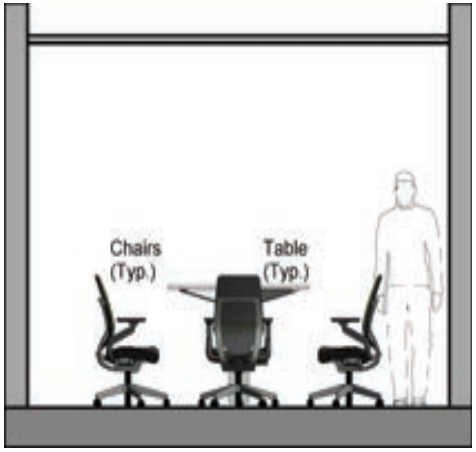
- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (30 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

SECTION 5.10: SHARED

MEDIUM CONFERENCE ROOM







FUNCTION

Room to accommodate up to ten people for meetings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

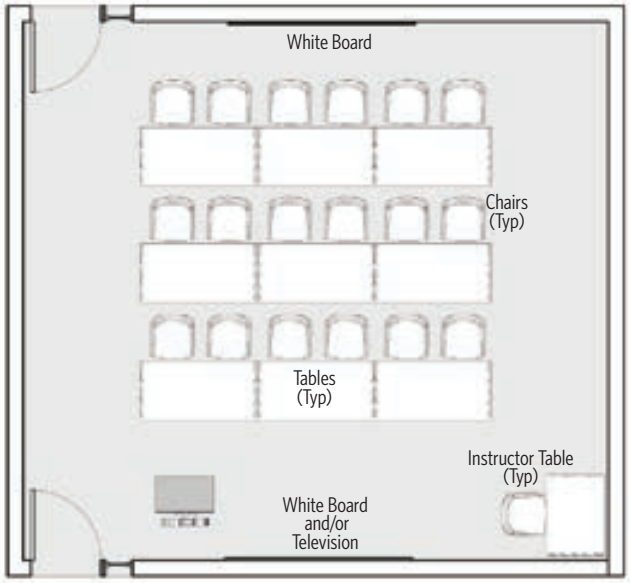
EQUIPMENT/FURNISHINGS

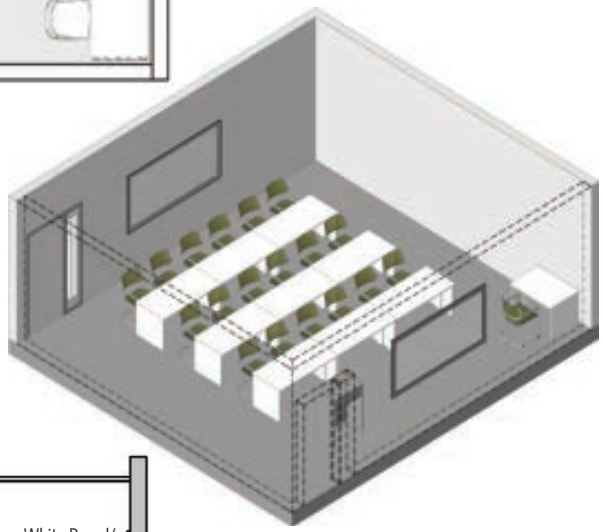
- Table
- Chairs
- White board and/or television
- Millwork

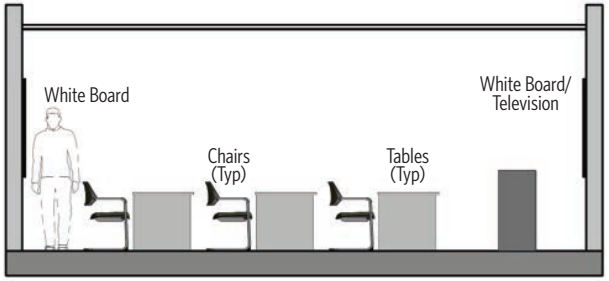
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations (30 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

LARGE CONFERENCE/SMALL TRAINING







FUNCTION

Room to accommodate up to 20 people for meetings or trainings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

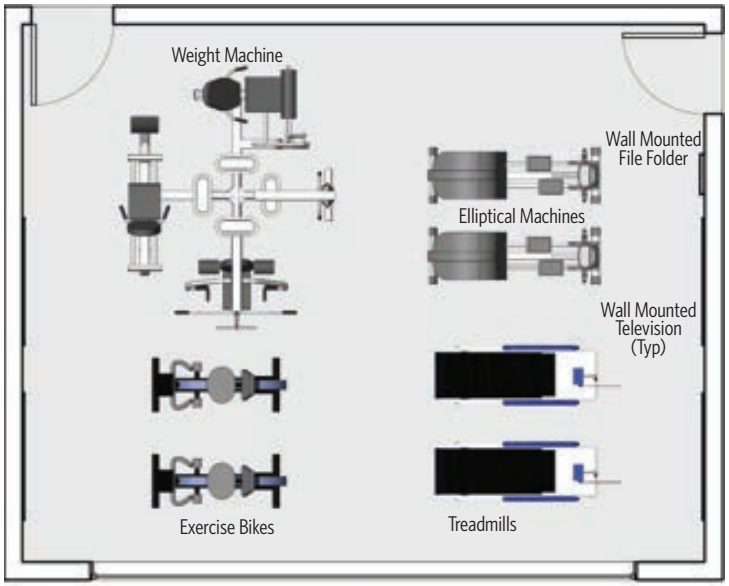
EQUIPMENT/FURNISHINGS

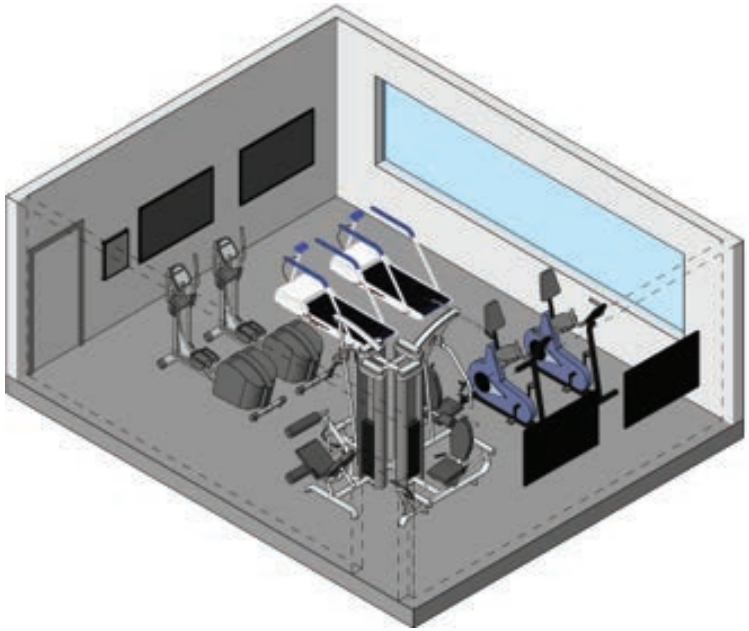
- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- White board and/or television
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" doors with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations (30 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

FITNESS ROOM





FUNCTION

Enclosed area with exercise equipment for employee fitness.

RELATIONSHIP TO OTHER AREAS

- Accessible from the Break Room, Lockers, and Restrooms and Showers

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

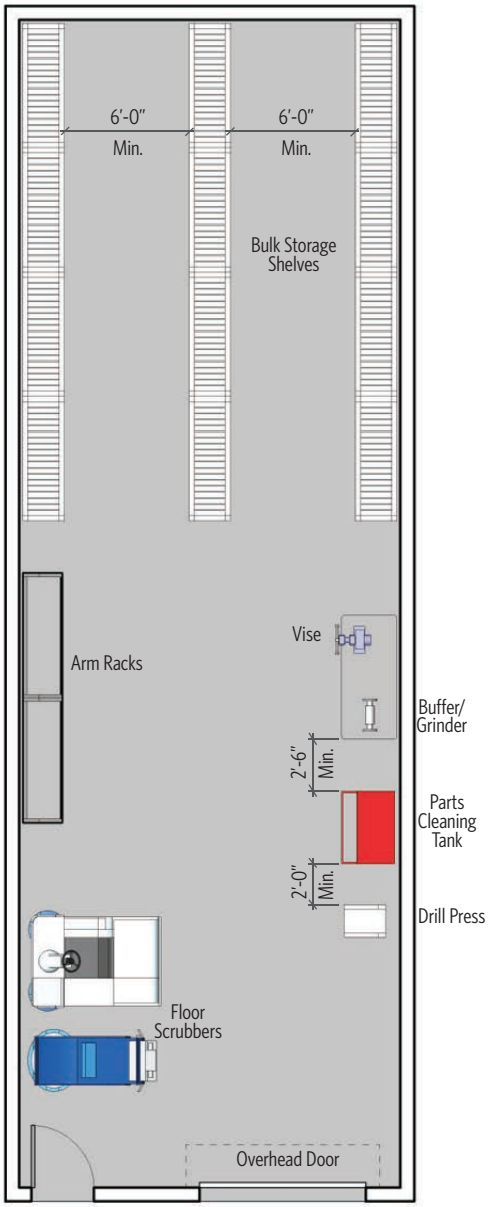
EQUIPMENT/FURNISHINGS

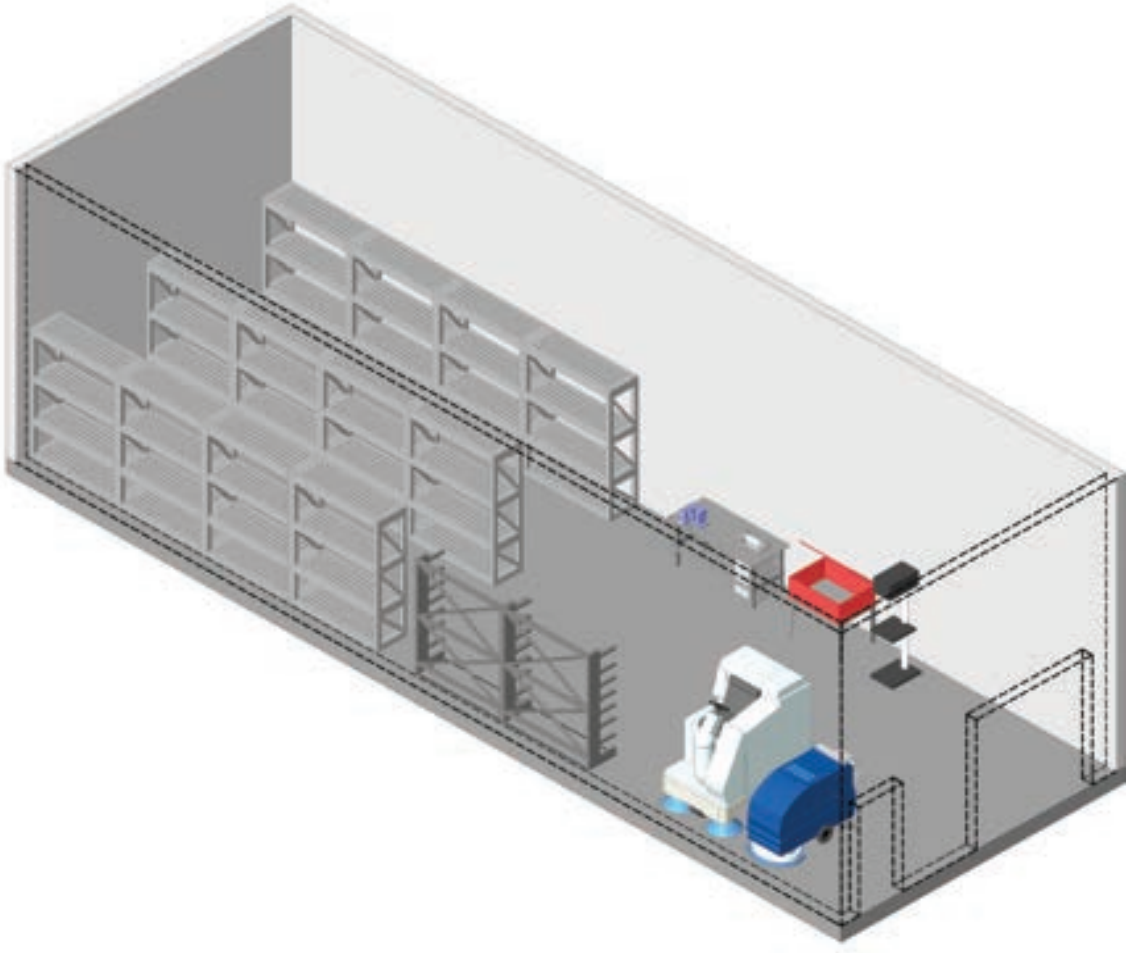
- Miscellaneous fitness equipment determined by the Owner
- Television

DESIGN FEATURES

- Architectural:
  - ✓ Floor: Athletic rubber floor tiles with base (recommended)
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors: Single leaf 3'-0" doors
- Daylighting: Exterior window desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (25 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

BUILDING ENGINEER/BUILDING STORAGE





BUILDING ENGINEER/BUILDING STORAGE

FUNCTION

Enclosed, secure shop and materials storage and upkeep of materials related to maintenance buildings and site grounds.

RELATIONSHIP TO OTHER AREAS

- Access to all Restroom/Showers and Break/Crew Room
- Adjacent to freight elevator

CRITICAL DIMENSIONS

- 14'-0" vertical clearance to structure and clearance

EQUIPMENT/FURNISHINGS

- Severe use workbench with vise
- Buffer/grinder
- Drill press
- Parts cleaning tank
- Shelving units
- Arm racks
- Floor scrubbers

DESIGN FEATURES

- Forklift access
- Electronically secured entry

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finish, made of concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Exterior overhead doors: High lifting sectional, steel, insulated, 10'-0" by 12'-0" with view panels. Automatic operator, interior and exterior push button controls with lockout on exterior
  - ✓ Bollards on exterior at jambs of overhead door (two each)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment

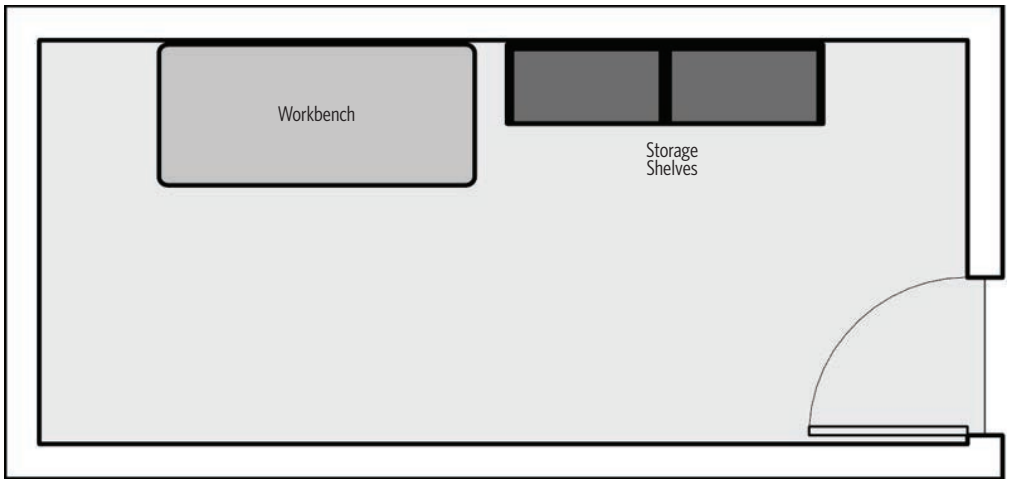
PLUMBING CONSIDERATIONS

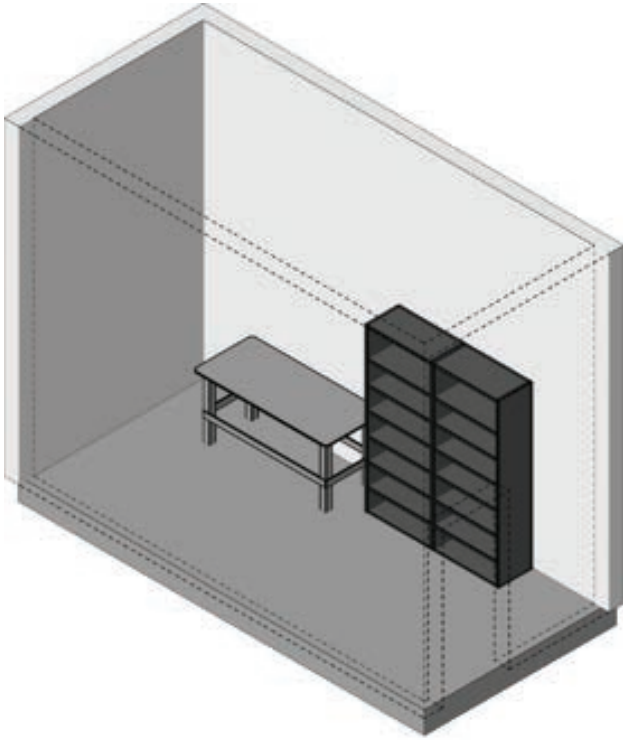
- Compressed air drop:
  - ✓ 2'-0" compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4'-0" AFF
  - ✓ Provide disconnects for 3/8" and 1/2" impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

REVENUE OFFICE





FUNCTION

Secure area for storing specialized tools and equipment for fare retrieval, adaptable with space for workstation.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Meet & Greet at entrance

CRITICAL DIMENSIONS

- 12'-0" vertical clearance to structure and fixtures

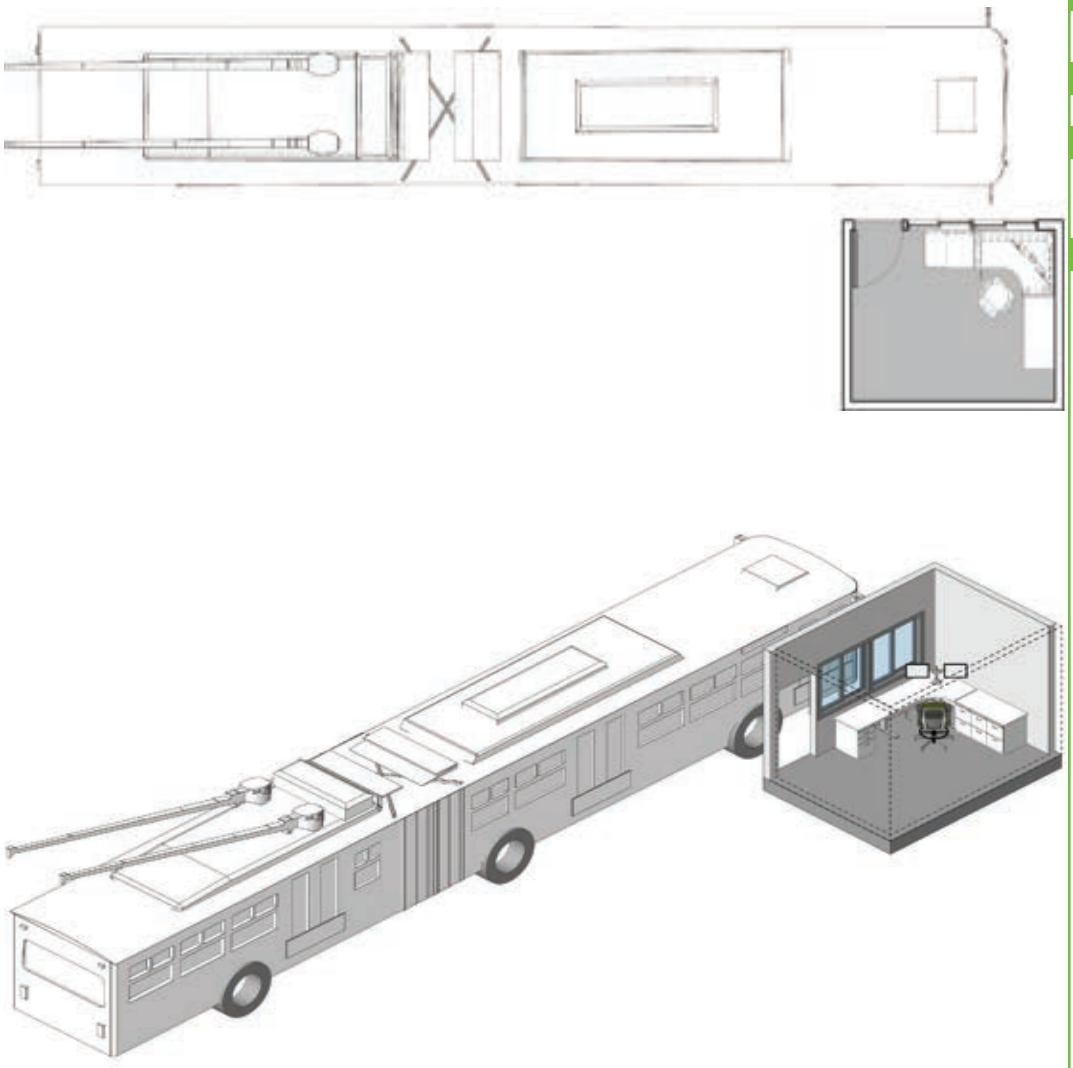
EQUIPMENT/FURNISHINGS

- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, with integral non-metallic light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, with light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3'-6" AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

MEET & GREET



FUNCTION

Space for buses to be greeted as they enter the facility.

RELATIONSHIP TO OTHER AREAS

- Adjacent to entrance of facility
- Buses will use circulation aisle to access Meet & Greet

CRITICAL DIMENSIONS

- 19’-0” vertical clearance (minimum)

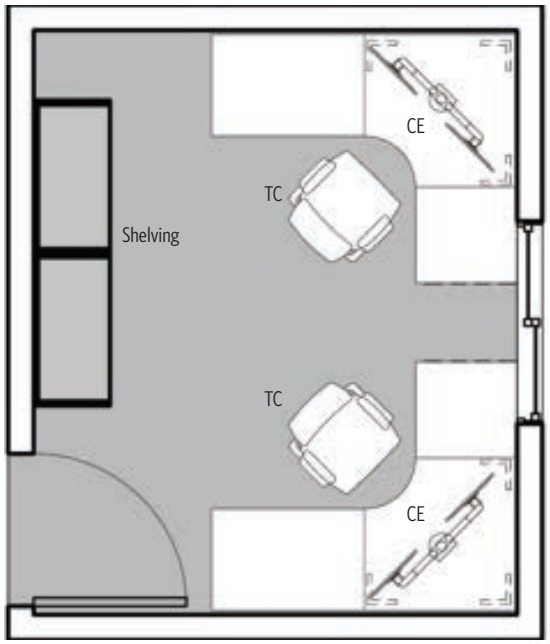
EQUIPMENT/FURNISHINGS

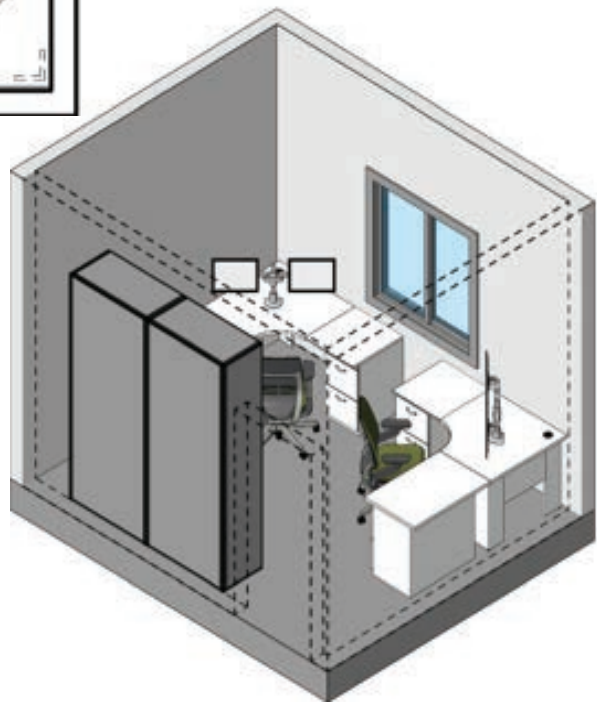
- Task chair
- Sit/stand workstation
- Under surface vertical files
- Cabinets
- Guest chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for Administration or Operations areas (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas (recommended).
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” door with loadable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

SECURITY OFFICE





FUNCTION

Office for security staff to monitor facility.

RELATIONSHIP TO OTHER AREAS

- Case specific (office areas specific to each group); reference general module

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

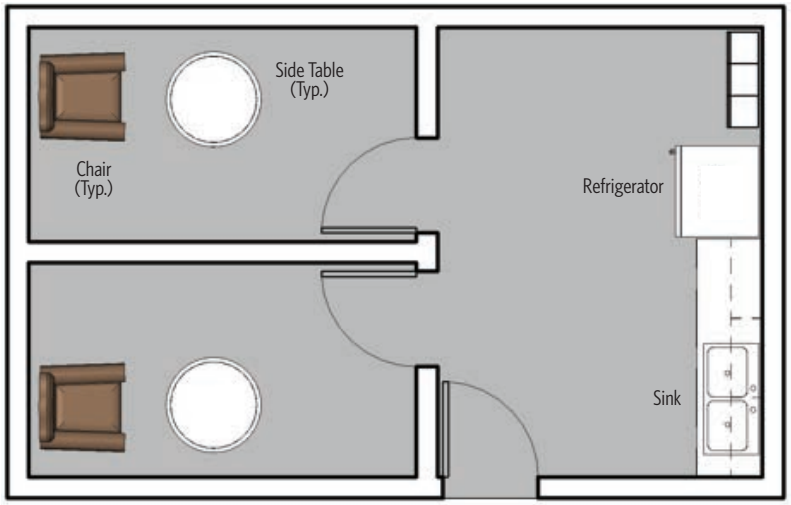
EQUIPMENT/FURNISHINGS

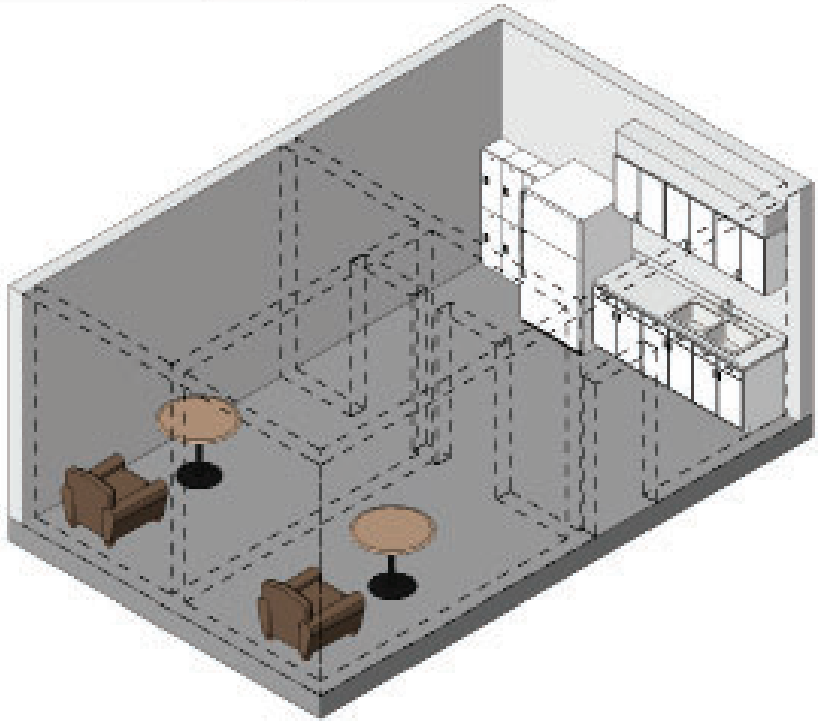
- Task chair
- Sit/stand workstation
- Under surface vertical files
- Cabinets
- Guest chairs

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring:
    - Carpet tile floor with rubber base for Administration or Operations areas (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
    - Resilient floor covering with base for maintenance areas (recommended).
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with loadable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (35 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a quad receptacle at each workstation
  - ✓ Provide one data outlet with four data ports at each workstation
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

LACTATION ROOM





FUNCTION

Dedicated room for employees who are breastfeeding to pump breast milk in private.

RELATIONSHIP TO OTHER AREAS

- Accessible from department office areas

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

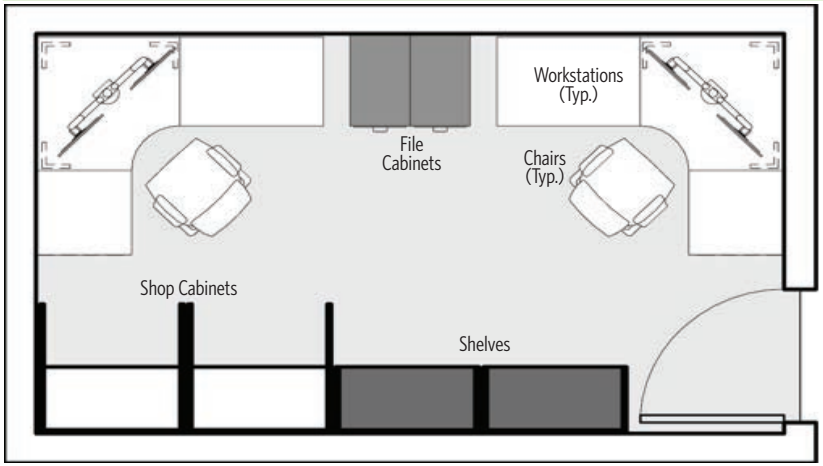
EQUIPMENT/FURNISHINGS

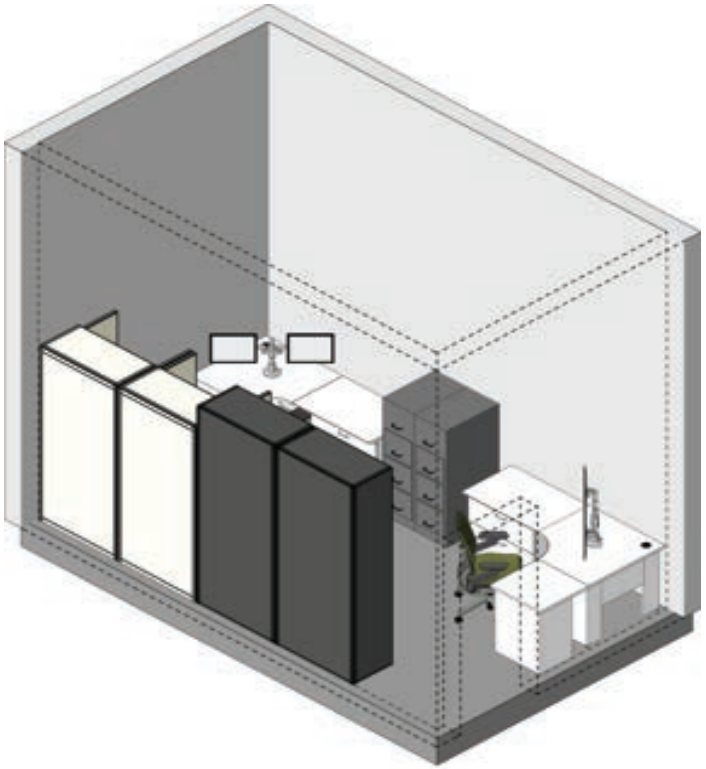
- Sink with countertops and cabinets
- Secure storage for equipment and supplies
- Lockers
- Side tables
- Refrigerator
- Chairs
- Door with interior lock

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf lockable 3'-0" door with loadable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Plumbing: rough-in for fixtures
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc indirect lighting average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
  - ✓ Provide one GFCI outlet above counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

FACILITIES STATIONARY ENGINEER OFFICE/SHOP





FUNCTION

Workstations, Shop and Storage for Facilities Stationary Engineering staff.

RELATIONSHIP TO OTHER AREAS

- Access to Parts Window/Shopkeeper/Parts Storage/ Shipping and Receiving/ Dock

CRITICAL DIMENSIONS

- 12’-0” vertical clearance to structure and fixtures

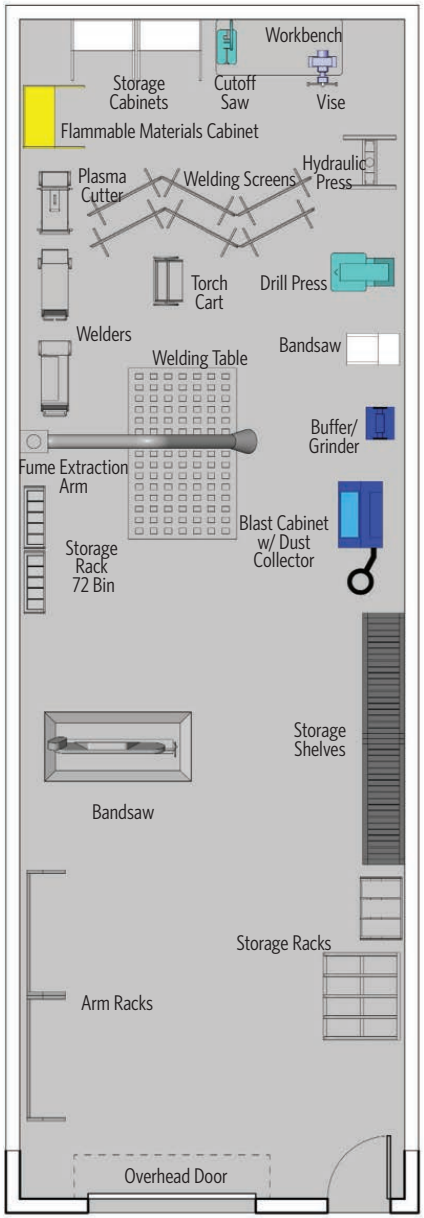
EQUIPMENT/FURNISHINGS

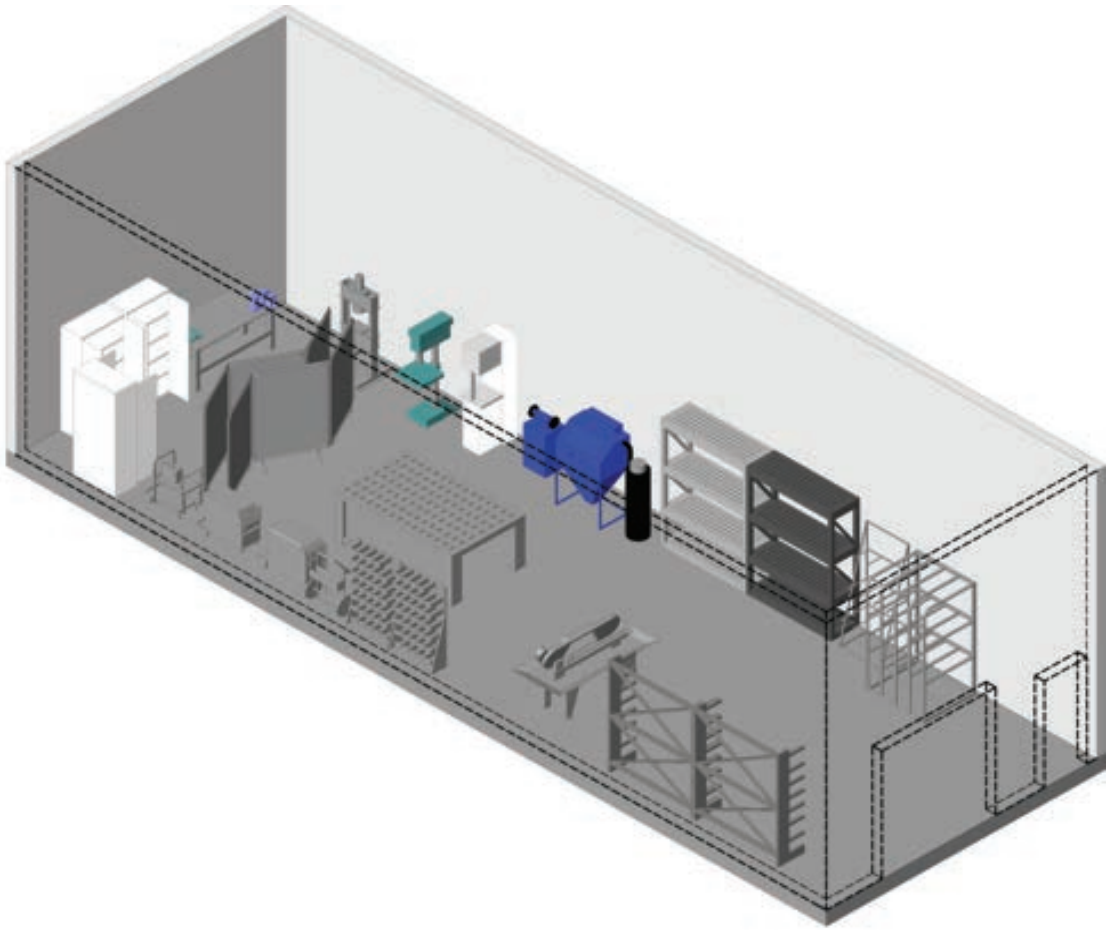
- Typical equipment is shown, reference Appendix A: Equipment Manual for specific project equipment

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Soil, grease, water, slip resistant concrete, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, light colored finished concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit and utilities, light colored finish
  - ✓ Doors: Personnel door with view panels to meet applicable code exit requirements (not required with wire mesh walls)
- Structural:
  - ✓ Control joints in floor slab at adequate spacing
  - ✓ Floor slab to accommodate in-floor radiant heat (if desired)
  - ✓ Structure as needed to support equipment
  - ✓ Floor slab designed to accommodate forklift access
- Mechanical:
  - ✓ In-floor radiant heat (if desired)
  - ✓ Heating set point: 65 degrees Fahrenheit
  - ✓ General ventilation (per code)
  - ✓ As required by equipment
- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting: LED lighting in accordance with IES recommendation minimum (20 fc average)

SHOPS SPACE (SHEET METAL +)





SHOPS SPACE (SHEET METAL +)

FUNCTION

Enclosed, secure shop and materials storage for metal fabrication.

RELATIONSHIP TO OTHER AREAS

- Adjacent to bus maintenance areas

CRITICAL DIMENSIONS

- 14’-0” vertical clearance to structure and clearance

EQUIPMENT/FURNISHINGS

- Reference Equipment Manual

DESIGN FEATURES

- Forklift access
- Electronically secured entry

ARCHITECTURAL CONSIDERATIONS

- Finishes:
  - ✓ Floor: Soil, grease, water, slip resistant concrete with integral, non-metallic, light reflective hardener, and chemical bonded concrete sealer
  - ✓ Walls: Soil and grease resistant, with light colored finish, made of concrete or masonry
  - ✓ Ceiling: Painted exposed structure, ductwork, conduit, and utilities, light colored finish
- Doors:
  - ✓ Personnel door with view panel to meet applicable code exit requirements
  - ✓ Exterior overhead doors: High lifting sectional, steel, insulated, 10’-0” by 12’-0” with view panels. Automatic operator, interior and exterior push button controls with lockout on exterior
  - ✓ Bollards on exterior at jambs of overhead door (two each)

STRUCTURAL CONSIDERATIONS

- Control joints in floor slab at adequate spacing
- Structure as needed to support equipment
- Floor slab designed to accommodate in-floor radiant heat (if desired)

MECHANICAL CONSIDERATIONS

- Heating set point: 65 degrees Fahrenheit
- General ventilation (per code)
- In-floor radiant heat (if desired)
- As required by equipment

PLUMBING CONSIDERATIONS

- Compressed air drop:
  - ✓ 2’-0” compressed air piping loop (minimum)
  - ✓ Compressed air drops with shut-off valve, union separator, regulator with gauge, lubricator, and quick disconnects on 4’-0” AFF
  - ✓ Provide disconnects for 3/8” and 1/2” impact tools at locations to be determined during detailed design
  - ✓ As required by equipment
- As required by equipment

ELECTRICAL CONSIDERATIONS

- Power:
  - ✓ All receptacles and outlets at 3’-6” AFF
  - ✓ Provide general purpose duplex receptacles (ten minimum) on walls and columns
  - ✓ Dedicated computer receptacle, adjacent to data conduit on wall or column
  - ✓ As required by equipment
- Lighting:
  - ✓ LED lighting in accordance with IES recommendation minimum (20 fc average)
  - ✓ Fixtures located to illuminate work spaces
- Communications:
  - ✓ Paging/intercom system speakers
  - ✓ Data conduit on columns and/or walls

SECTION 5.11: TRAINING

GENERAL OFFICE MODULES

MANAGER

- Reference **Office Module Private Office - 224 sf**
- Adjacent to Superintendent
- Adjacent to Assistant Superintendent

SUPERINTENDENT

- Reference **Office Module Private Office - 224 sf**
- Adjacent to Manager
- Adjacent to Assistant Superintendent

ASSISTANT SUPERINTENDENT

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Manager
- Adjacent to Superintendent

SUPERVISOR

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Verification of Transit Training
- Adjacent to Instructors

CLERICAL STAFF

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Team Leaders

TEAM LEADERS

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Clerical Staff

CAT TRAINING

- Reference **Office Module Workstation - 64 sf**
- Adjacent to Supervisors

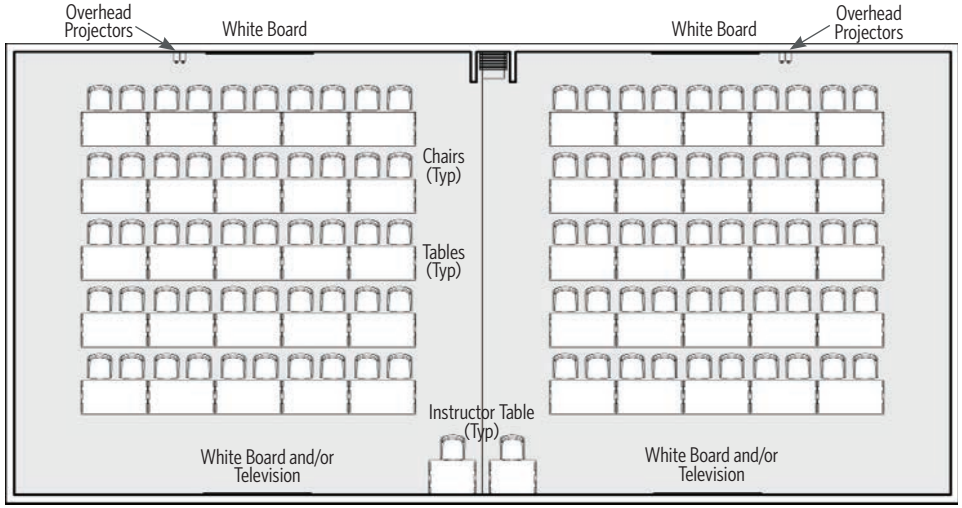
INSTRUCTORS

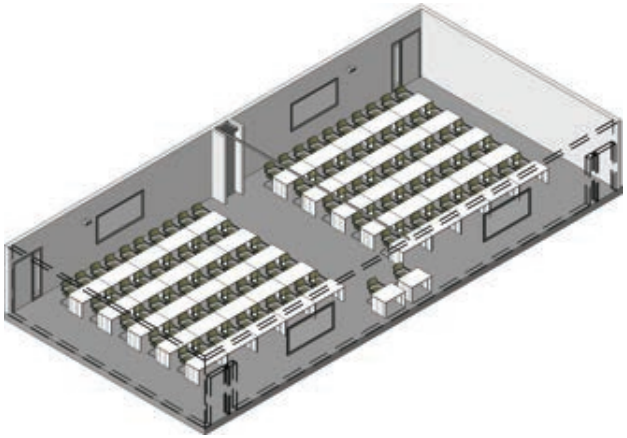
- Reference **Office Module Workstation - 30 sf**
- Adjacent to Training Room
- Adjacent to Classroom

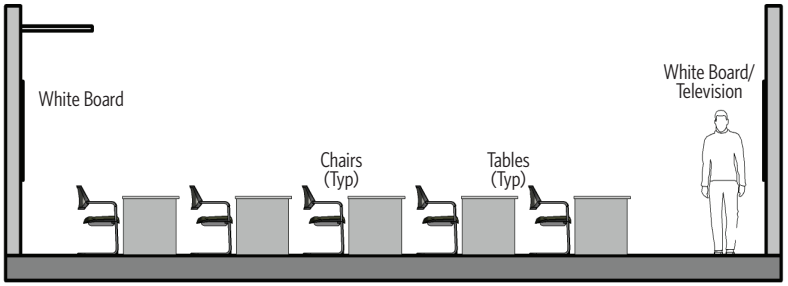
IT OFFICE

- Reference **Office Module Private Office - 120 sf**
- Adjacent to Computer Lab

CLASSROOM A & B







FUNCTION

Large room(s) for staff training activities. Each space shall accommodate 50 students separately, 100 when combined. Classrooms A & B can be divided or joined via folding partition wall.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

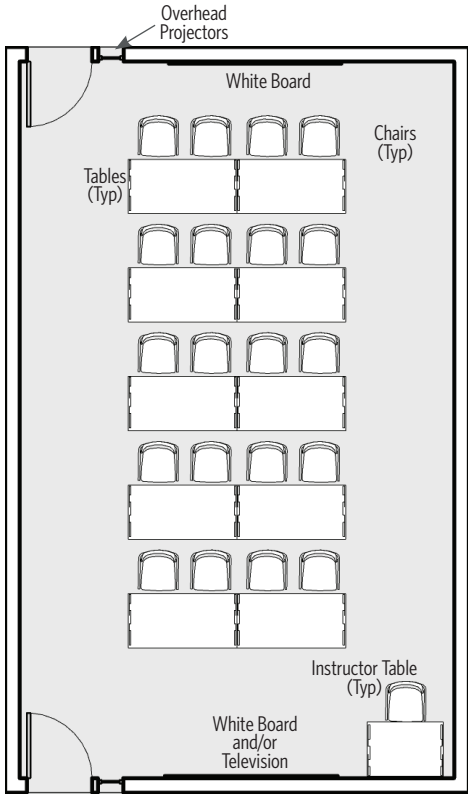
EQUIPMENT/FURNISHINGS

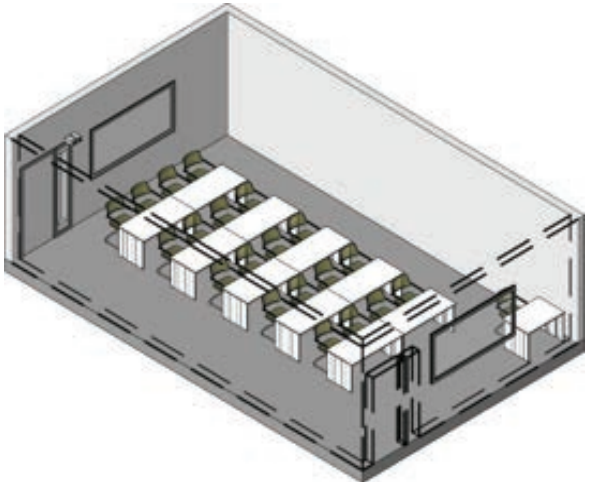
- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Whiteboard and/or television
- Overhead projectors

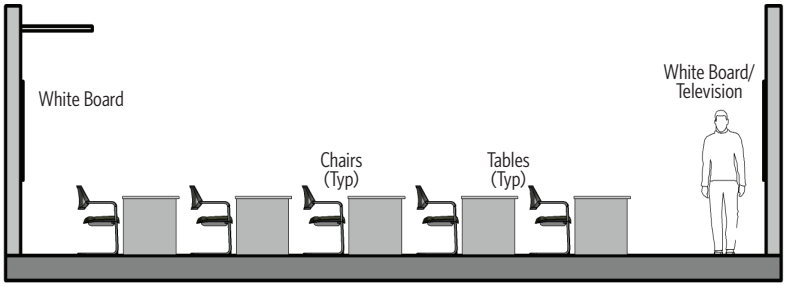
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Power:
  - ✓ LED lighting in accordance with IES recommendations (35 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins every ten feet in all walls in room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

CLASSROOM C & D







FUNCTION

Room(s) for staff training. This space accommodates 20 students and one instructor.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

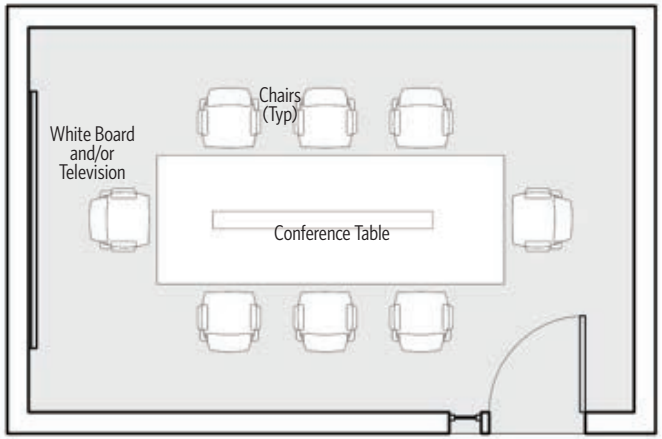
EQUIPMENT/FURNISHINGS

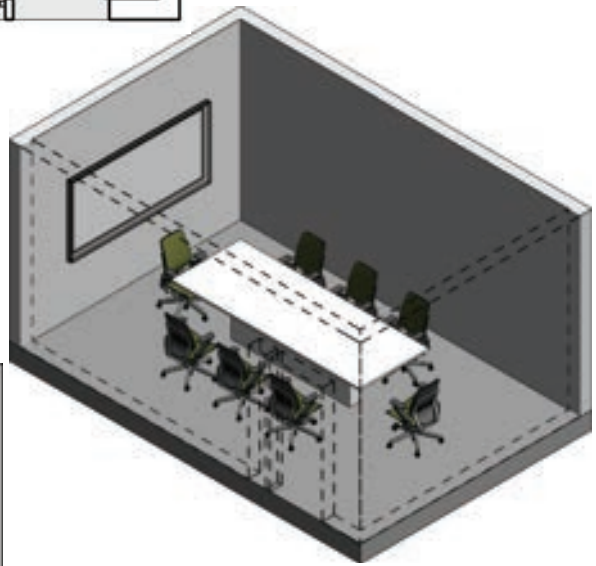
- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Whiteboard and/or television
- Overhead projector

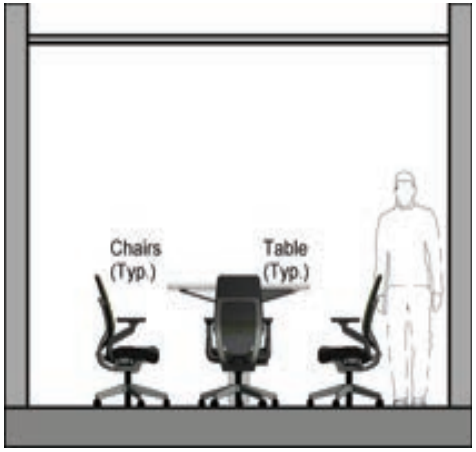
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Power:
  - ✓ LED lighting in accordance with IES recommendations (35 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins every ten feet in all walls in room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

CONFERENCE ROOM A & B







FUNCTION

Room to accommodate up to 10 people for meetings.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

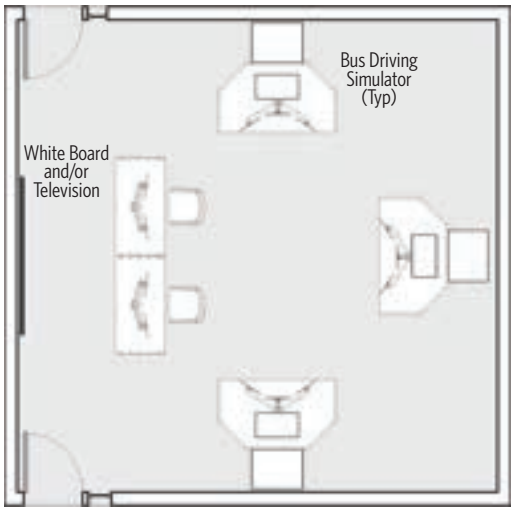
EQUIPMENT/FURNISHINGS

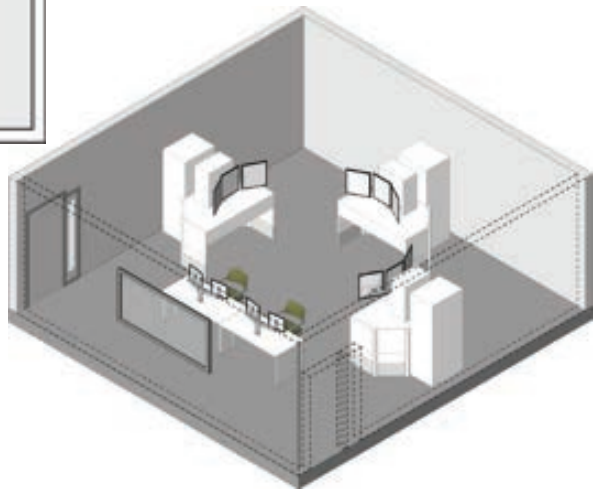
- Table
- Chairs
- White board and/or television
- Millwork

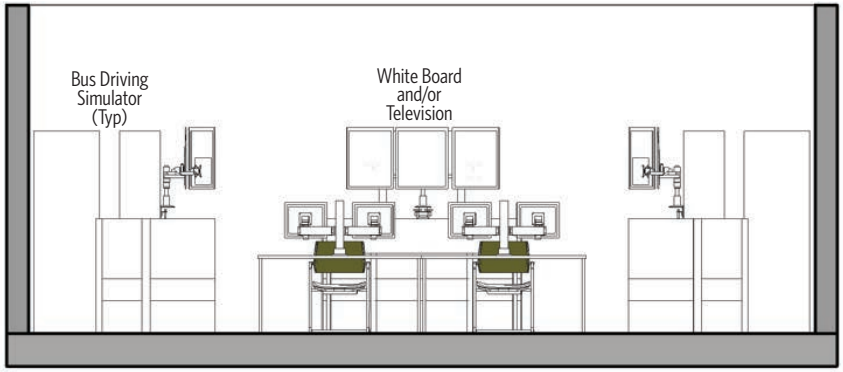
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations (30 fc average)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

SIMULATOR ROOM







FUNCTION

Room for computer-based simulator training for staff.

RELATIONSHIP TO OTHER AREAS

- Accessible to all departments in the building
- Adjacent to Training Office area

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

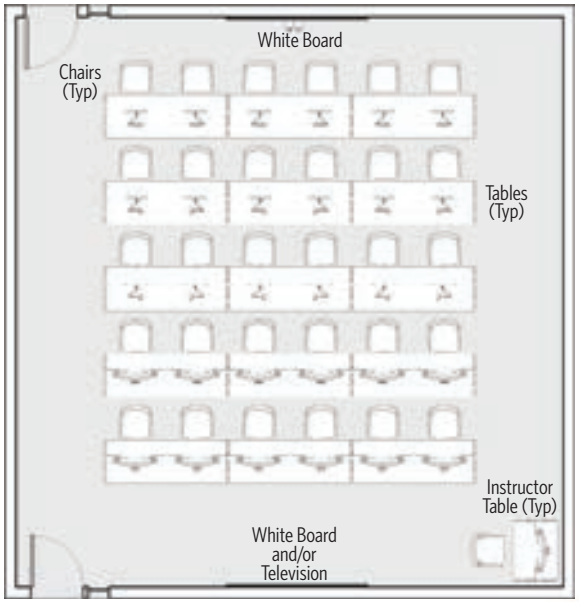
EQUIPMENT/FURNISHINGS

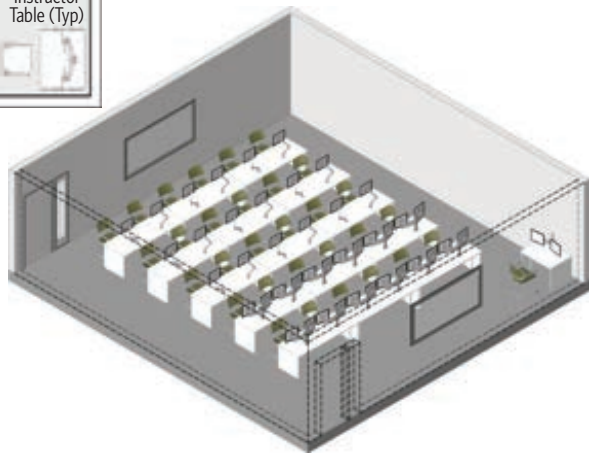
- Simulators
- Whiteboard and/or television

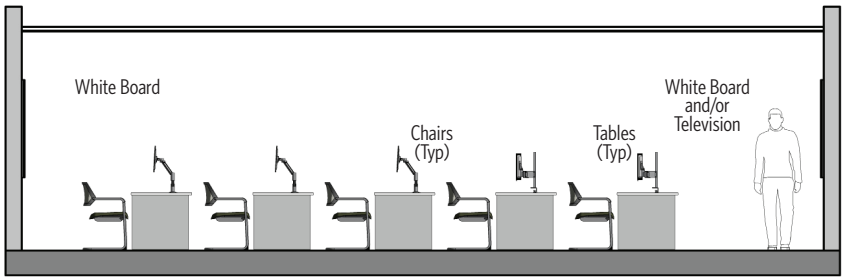
DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - ○ Electronically secured entry
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendations. (20 fc indirect lighting average) (no glare)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of the table
  - ✓ Provide one data outlet with four data ports in the floor under the middle of the table
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

COMPUTER LAB







FUNCTION

Room for computer-based training activities.

RELATIONSHIP TO OTHER AREAS

- Accessible from all departments in the building
- Adjacent to Training Office areas

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

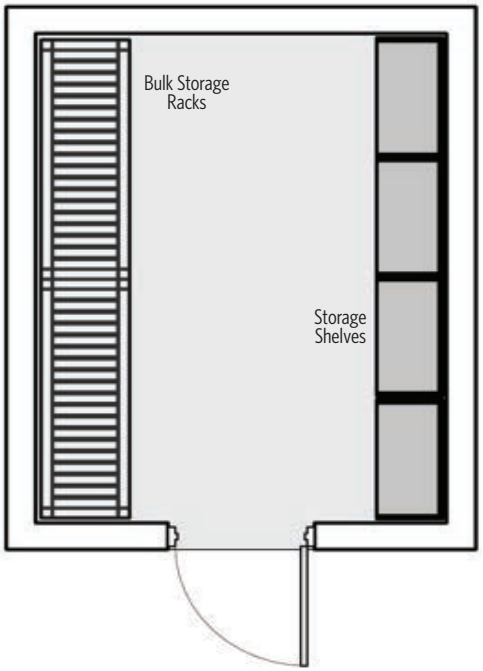
EQUIPMENT/FURNISHINGS

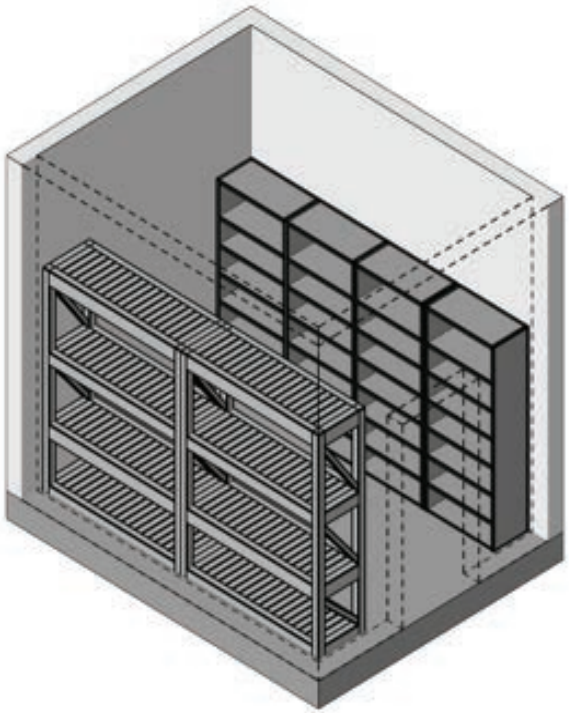
- Mayline Cohere Flip/nest table 60" by 30" laminate
- Cool mesh nesting chairs
- Whiteboard and/or television
- Computers
- Overhead projector

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Carpet tile floor with rubber base or resilient floor covering with base (recommended). Carpet tile must comply with the specifications developed by the San Francisco Department of the Environment, dated June 8, 2018
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - ○ Electronically secured entry
- Daylighting: Exterior window or vision glass desired
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Provide CO2 detection
- Power:
  - ✓ LED lighting in accordance with IES recommendations. (20 fc indirect lighting average) (no glare)
  - ✓ Provide general purpose duplex receptacles (four minimum) and a guard receptacle in the floor under the middle of each of the tables
  - ✓ Provide one data outlet with four data ports in the floor under the middle of each table
  - ✓ Provide box and one inch or larger conduit rough-ins every ten feet in all walls in room
- Lighting:
  - ✓ Dimmable, indirect lighting with vacancy sensor
  - ✓ Task lighting (recommended)

HANDOUTS STORAGE





FUNCTION

Secure room for storage of training handout materials and supplies.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

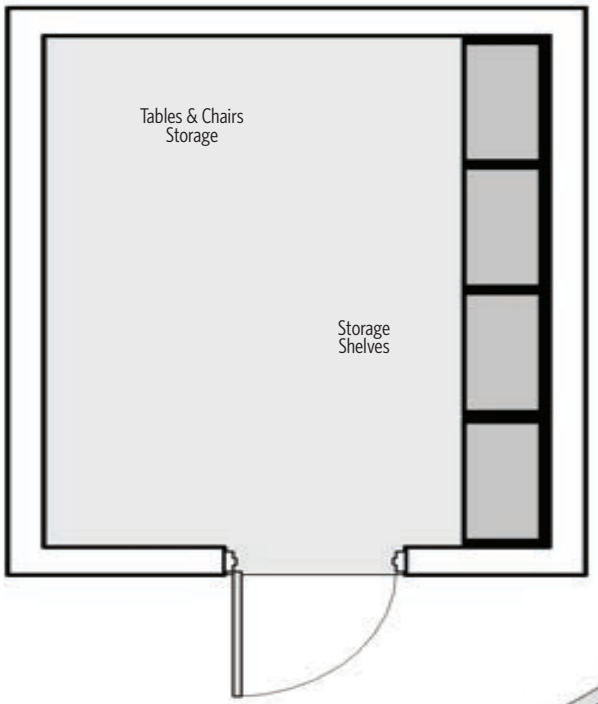
EQUIPMENT/FURNISHINGS

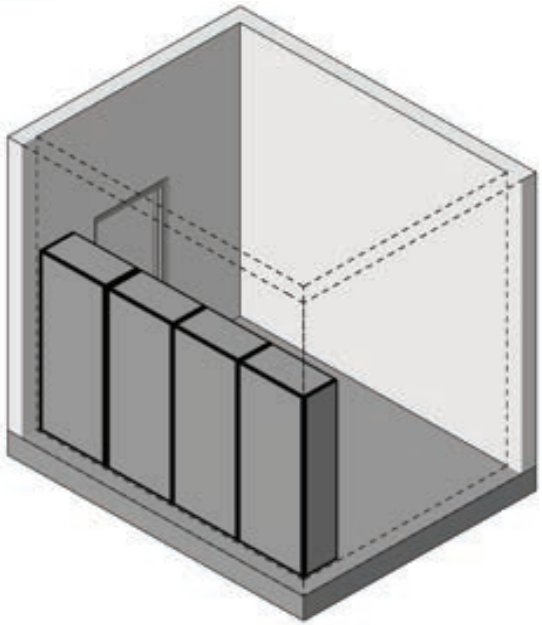
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with lockable lever set hardware (recommended)
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

TRAINING AID STORAGE





FUNCTION

Secure room for storage of training aid materials and supplies.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Classroom and Computer Lab

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

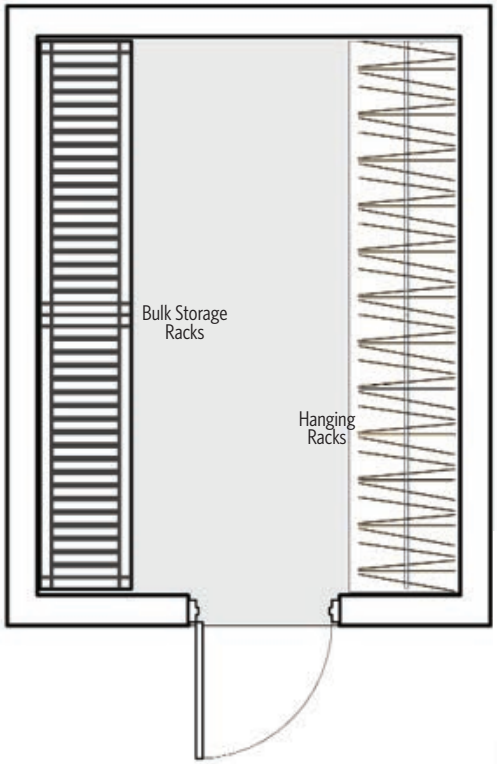
EQUIPMENT/FURNISHINGS

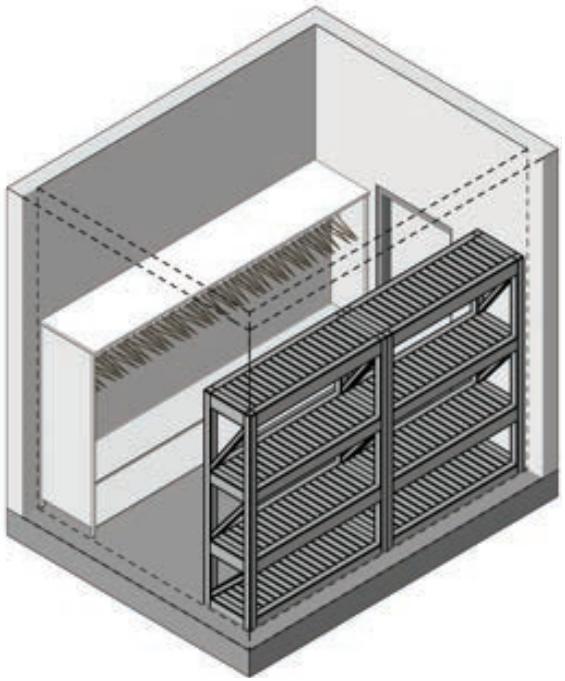
- Shelves
- Includes Tables and Chairs storage (as needed)

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 4'-0" door with lockable lever set hardware (recommended)
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

UNIFORM STORAGE





FUNCTION

Enclosed room for storage of operator uniforms and safety attire.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Training Office areas

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

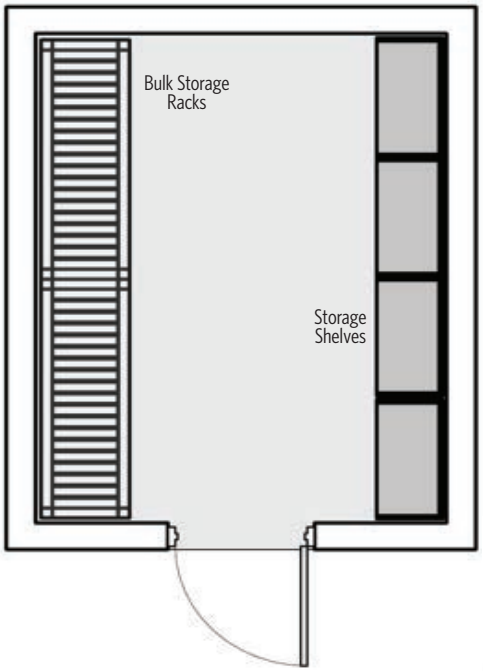
EQUIPMENT/FURNISHINGS

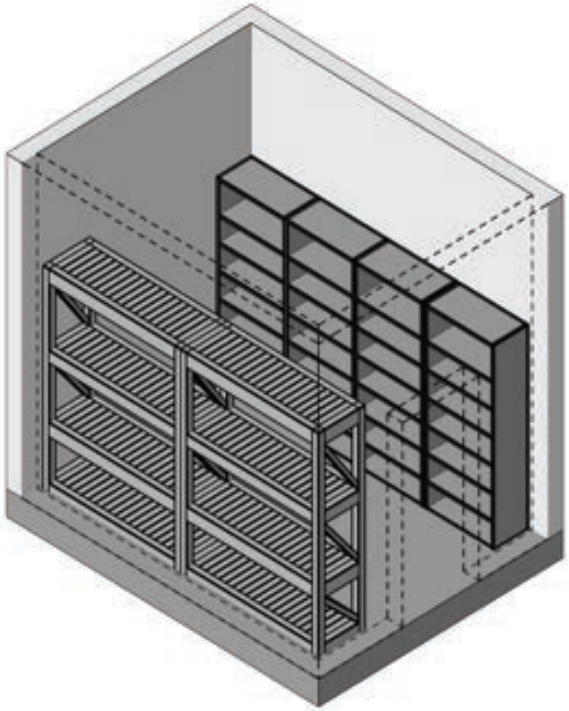
- Hanging racks
- Bulk storage racks

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” door with loadable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED lighting in accordance with IES recommendation (15 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensor

RECORDS STORAGE





FUNCTION

Secure area for the storage of files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

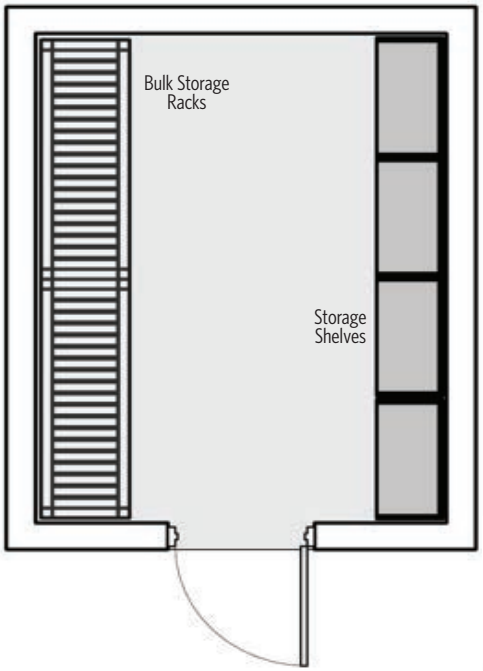
EQUIPMENT/FURNISHINGS

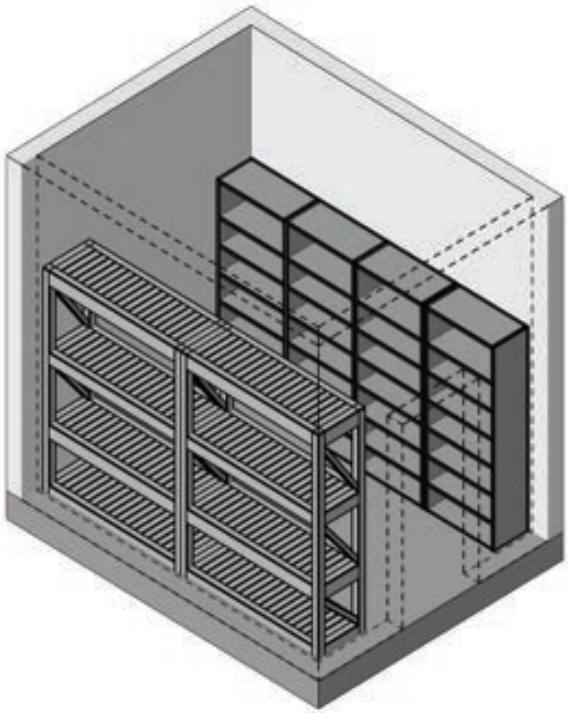
- Shelving
- Racking

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" door with lockable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: No exterior exposure
- Plumbing: Rough in for equipment
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (35 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

RECORDS ARCHIVE STORAGE





FUNCTION

Secure area for the long term storage of archived files and records.

RELATIONSHIP TO OTHER AREAS

- N/A

CRITICAL DIMENSIONS

- 9’-0” vertical clearance (minimum)

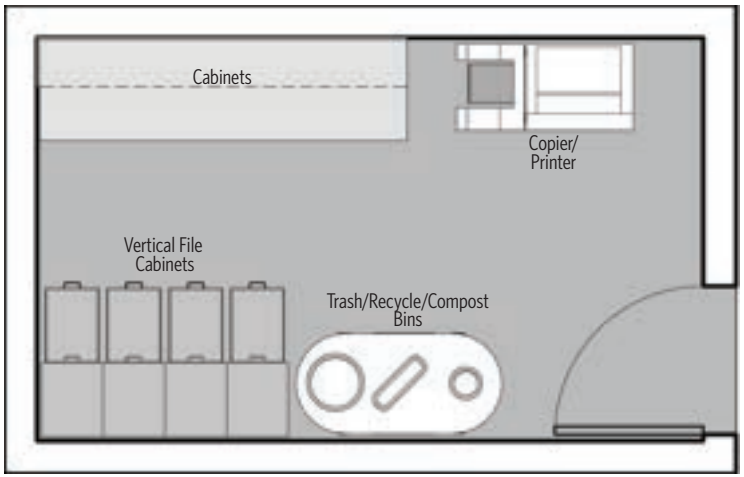
EQUIPMENT/FURNISHINGS

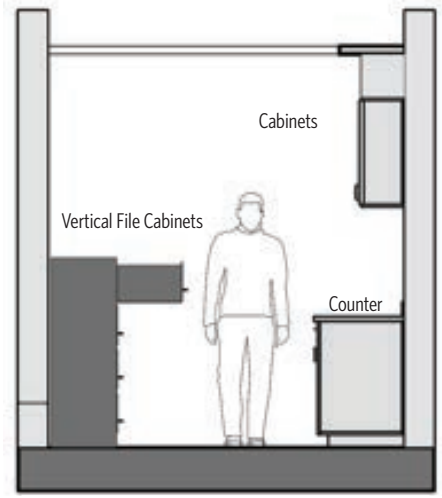
- Shelves
- Racks

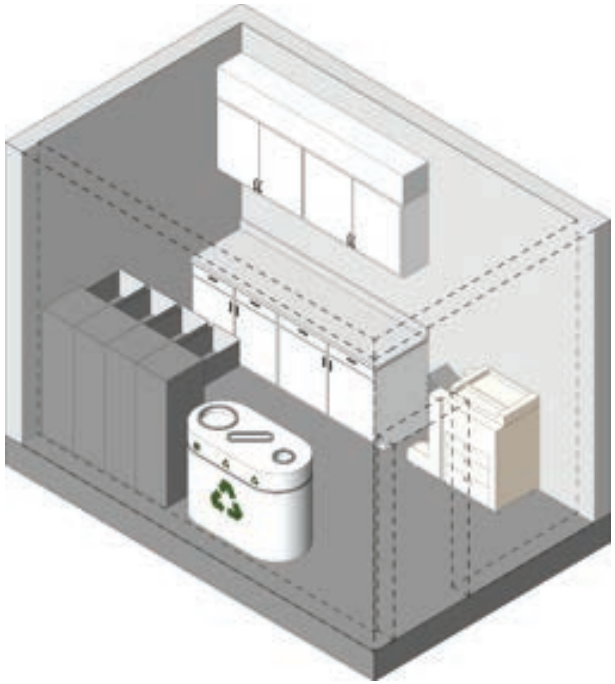
DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors:
    - Single leaf 3’-0” door with lockable lever set hardware (recommended)
    - Electronically secured entry
- Daylighting: No exterior exposure
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
  - ✓ Keep consistent humidity levels
- Power:
  - ✓ LED lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
- Lighting: Dimmable, indirect lighting with occupancy sensors

COPY/SUPPLY







FUNCTION

Dedicated alcove or room for copier/printer/scanner/fax machine, storage for office supplies, and work surface.

RELATIONSHIP TO OTHER AREAS

- Access to all office areas

CRITICAL DIMENSIONS

- 9’ -0” vertical clearance (minimum)

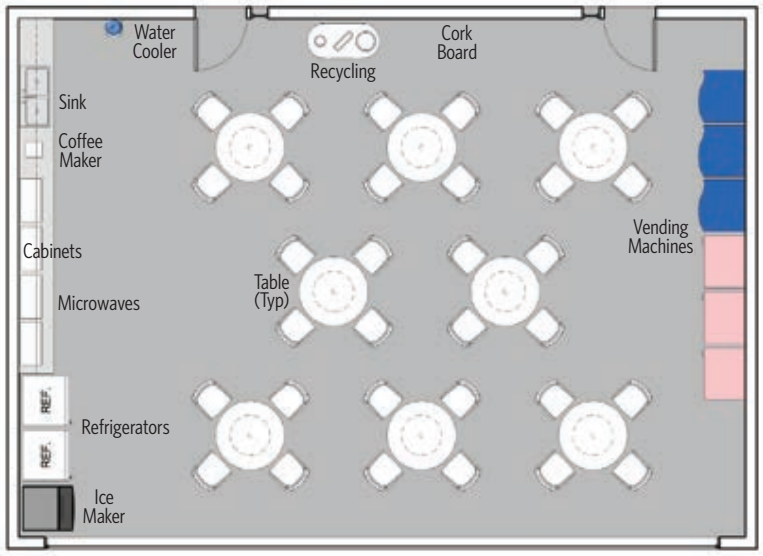
EQUIPMENT/FURNISHINGS

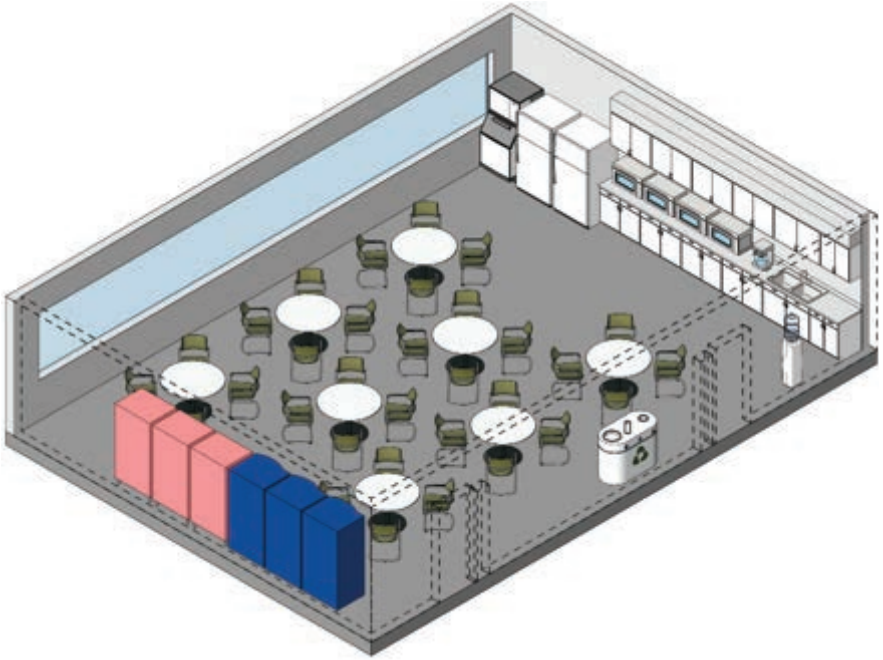
- Copier/printer/scanner/fax machine
- Work surface with cabinets below and above
- Filing cabinets
- Trash/recycling/compost bins
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - ○ Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - ○ Single leaf 3’-0” door with lockable lever set hardware (recommended)
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide one data outlet with four data ports
  - ✓ Provide box and one inch or larger conduit rough-ins to three other locations in the room
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

BREAK ROOM/KITCHENETTE/VENDING





FUNCTION

Enclosed room for use as a break area for training staff.

RELATIONSHIP TO OTHER AREAS

- Access from all Training Office areas

CRITICAL DIMENSIONS

- 9' -0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

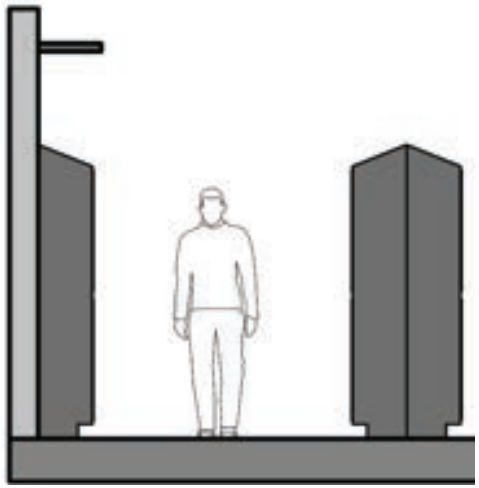
- Counter space, upper and lower cabinets, sink, microwaves, refrigerators, vending machines, water coolers, ice maker, water filter, coffee maker, tables, chairs, trash/recycling/compost bins
- Millwork

DESIGN FEATURES

- Architectural:
  - ✓ Furniture: Use owner furniture standards (if applicable)
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf 3'-0" doors (two minimum) with lockable lever set hardware (recommended)
- Daylighting: Exterior window desired
- Plumbing: Rough-in for fixtures
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Provide CO2 detection
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
  - ✓ Provide five GFCI outlets above kitchenette counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

OPERATOR LOCKERS





FUNCTION

Co-ed locker room with private changing areas and locker space for Operators to store personal gear and clothing.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room/Kitchenette/Vending
- Adjacent to Men's and Women's Restrooms

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

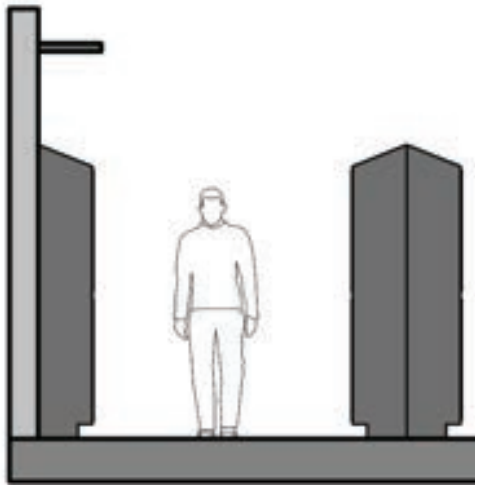
- Heavy duty, two tier, 3'-0", well-ventilated, slant top, half-height lockers; one each per Operator assigned to the facility

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
  - ✓ Walls:
    - Tile covering or painted masonry (recommended)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

INSTRUCTOR LOCKER





FUNCTION

Co-ed locker room with private changing areas and locker space for Instructors to store personal gear and clothing.

RELATIONSHIP TO OTHER AREAS

- Adjacent to Break Room/Kitchenette/Vending
- Adjacent to Men's and Women's Restroom

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

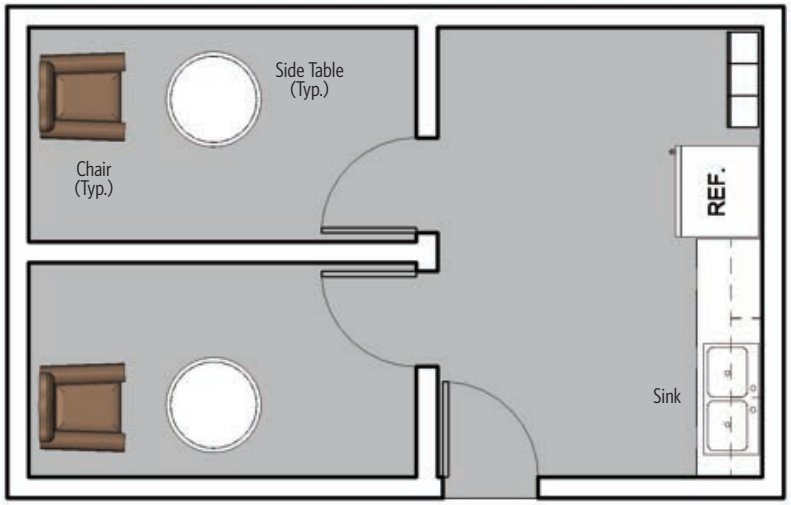
EQUIPMENT/FURNISHINGS

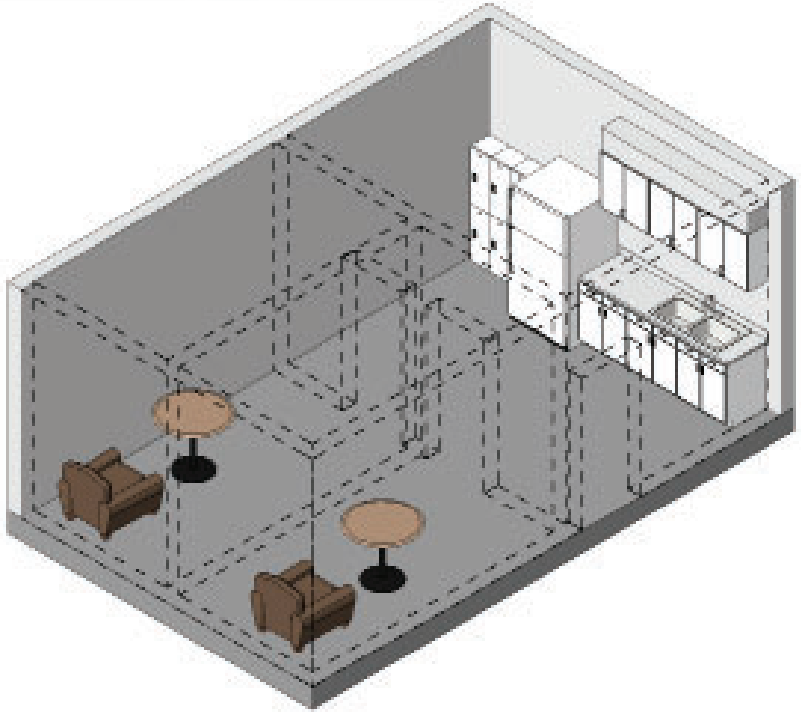
- Heavy duty, two tier, 3'-0", well-ventilated, slant top, half-height locker (one each per Instructor assigned to the facility)

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Resilient floor covering or finished concrete (recommended)
  - ✓ Walls:
    - ○ Tile covering or painted masonry (recommended)
  - ✓ Ceiling: Acoustical ceiling tile or painted exposed structure (recommended)
  - ✓ Doors: Single leaf 3'-0" door
- Mechanical:
  - ✓ Provide appropriate balanced cooling, heating, ventilation, and exhaust (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc average)
  - ✓ Provide general purpose duplex receptacles (six minimum)
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

LACTATION ROOM





FUNCTION

Dedicated room for personal privacy and storage or first aid supplies and personal care items.

RELATIONSHIP TO OTHER AREAS

- Accessible from department office areas

CRITICAL DIMENSIONS

- 9'-0" vertical clearance (minimum)

EQUIPMENT/FURNISHINGS

- Sink with countertops and cabinets
- Secure storage for equipment and supplies
- Lockers
- Side tables
- Refrigerator
- Chairs

DESIGN FEATURES

- Architectural:
  - ✓ Flooring: Finished concrete
  - ✓ Walls:
    - Gypsum board on metal studs (typical) with wall finishes or painted masonry (optional gypsum board furring)
  - ✓ Ceiling: Acoustical ceiling tile (recommended)
  - ✓ Doors:
    - Single leaf lockable 3'-0" door with loadable lever set hardware (recommended)
- Plumbing: rough-in for fixtures
- Mechanical:
  - ✓ Provide appropriate, balanced cooling, heating, and ventilation (per code)
  - ✓ Heating set point: 68 degrees Fahrenheit
  - ✓ Cooling set point: 74 degrees Fahrenheit
- Power:
  - ✓ LED Lighting in accordance with IES recommendation (20 fc indirect lighting average)
  - ✓ Provide general purpose duplex receptacles (three minimum)
  - ✓ Provide one GFCI outlet above counter
- Lighting:
  - ✓ Dimmable, indirect lighting with occupancy sensor
  - ✓ Task lighting (recommended)

APPENDIX A:
MAINTENANCE EQUIPMENT MANUAL

Introduction

Overview

The equipment listed in the Equipment List, Datasheets, and Cutsheets is the minimum expectation of the SFMTA for the purpose of the RFP. If SFMTA wishes to require a higher standard of equipment during the PDA phase, then that would be negotiated at that time. The purpose of this document is to reflect the preferences of the SFMTA and provide a high level of detail so that there may be clear expectations on the part of all parties for the type of equipment that is expected and the associated budget. This Appendix was commissioned by the SFMTA in fall of 2018, and it builds on the equipment narrative and strengths and weaknesses discussion in Section 4 of the Design Criteria Document.

It is recognized that equipment technologies, manufacturers, industry standards, and best practices may evolve throughout the life of the project. As such, the equipment referenced in this Appendix shall be interpreted as performance-based guidance rather than prescriptive limitations. Equipment that varies from specific manufacturers, models, or configurations identified in this Appendix may be proposed, provided such equipment meets or exceeds the functional intent, performance criteria, reliability, maintainability, and lifecycle value defined within this document, and is subject to review and approval by SFMTA

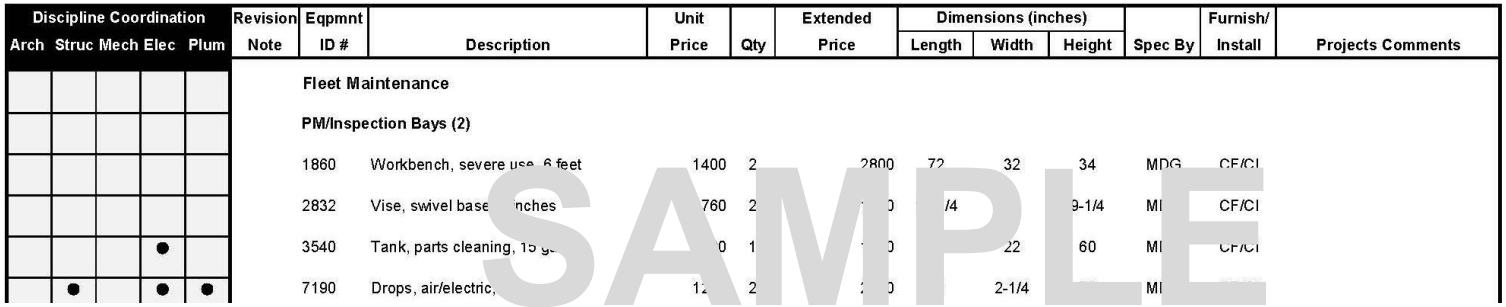
This Appendix includes:

- Introduction
- Equipment List- organized from low to high equipment ID number.
- Equipment Datasheets
- Equipment Cutsheets

These minimum requirements are based on existing equipment and potential equipment acquisitions. Maintenance equipment described in this Manual represents the needs of each functional area of the facility based on discussions with stakeholders.

Reference Appendix A.

Equipment List Definitions:



Discipline Coordination					Revision	Eqpmnt		Unit		Extended	Dimensions (inches)				Furnish/	
Arch	Struc	Mech	Elec	Plum	Note	ID #	Description	Price	Qty	Price	Length	Width	Height	Spec By	Install	Projects Comments
							Fleet Maintenance									
							PM/Inspection Bays (2)									
						1860	Workbench, severe use, 6 feet	1400	2	2800	72	32	34	MDG	CF/CI	
						2832	Vise, swivel base, inches	760	2	[illegible]	/4		9-1/4	MI	CF/CI	
				●		3540	Tank, parts cleaning, 15 g[illegible]	0	1	[illegible]		22	60	MI	CF/CI	
	●		●	●		7190	Drops, air/electric,	12	2	[illegible]			2-1/4	MI		

SAMPLE

Category:	Description:
Discipline Coordination:	Identifies other design team disciplines requiring coordination to properly accommodate equipment items in the facility design. Refer to Datasheets for detailed coordination issues.
Equipment Identifier:	All identical equipment items are assigned the same number. The Equipment Identifier coordinates this list with equipment layout drawings, datasheets, and, cutsheets. New equipment items are indicated by a 4-digit Equipment Identifier and owner supplied items are indicated by a 5-digit Equipment Identifier number.
Item Description:	Description for equipment.
Quantity:	The number of equipment items located within the functional area is listed.
Price:	All pricing is list from the manufacturer.
Dimensions:	Overall equipment length, width, and height respectively, listed in inches unless otherwise noted.
Furnish/Install:	Recommends responsibility to furnish and install equipment.
CF/CI	Contractor to furnish and install, usually by bid package specifications for General Contractor installation.
OF/OI	Owner to furnish and install, usually smaller office and shop equipment normally purchased by owner. This also includes any items owner will provide.
Project Comments:	Includes special requirements and other relevant data to be considered during detailed design for the project.

Equipment Datasheets

The purpose of this document is to identify the various coordination issues and disciplines associated with the types of equipment recommended for facility operations. The Equipment Datasheets are for discipline coordination purposes only. Coordination issues are grouped per Equipment Datasheet according to the following disciplines:

- Architectural
- Structural
- Mechanical
- Electrical
- Plumbing

The equipment design in this document is minimum requirements, with final equipment selection to be made during the PDA phase.

Equipment Cutsheets

The equipment Cutsheets aid in the identification of equipment and serves to assist the owner with establishing standards of quality items. The Cutsheets establish standards of quality, performance, feature, and construction.

General Information

- All equipment shall be heavy duty industrial grade.
- All equipment shall be “equal to or better than” the listed equipment.
- Quantities have been established based on initial floor plans. All quantities need to be verified by the final design team.
- At each phase of the design process, the team will need to review the Equipment Layout Drawings and Equipment List with the SFMTA to verify that they are acceptable.

Preliminary Equipment List

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							MAINTENANCE							
							60' Bus Repair Bay (10)							
			●				1128	Cabinet, computer, mobile	6	26	24	68	CF/CI	
							1184	Cabinet, storage, shop/locker	26	24	24	72	OF/OI	
							1396	Platform, work, roof, portable (set of two)	1				CF/CI	
							1425	Rack, arm, single face, six foot wide, 15,000 pound	1	72	61	144	CF/CI	
							1444	Storage unit, 42 bin	6	33-3/4	12	42	CF/CI	
							1800	Toolbox, rolling	40	24	48		OF/OI	
							1860	Workbench, severe use, six foot	10	72	32	34	CF/CI	
							2165	Jack, floor, five ton	2	62-1/4	16-3/4	48	CF/CI	
							2370	Dolly, wheel	6	39-1/2	43-1/2	35	CF/CI	
							2372	Dolly, wheel, high lift	10	47-1/2	42	72	CF/CI	
							2644	Recovery unit, refrigerant, rolling	4	36	24	50	CF/CI	
							2835	Vise, five inch	10	9	18	10	CF/CI	
			●				3540	Tank, parts cleaning, 15 gallon	6	36	22	38-1/2	OF/OI	
●	●		●	●			5630	Lift, axle, three post, 105,000 pound, shallow design	9	25-3/8	14-1/4	32-7/8	CF/CI	
●	●		●	●			5692	Lift, axle, scissor, adjustable, 90,000 pound	1	---	66	---	CF/CI	
●			●	●			7541	Pump, diaphragm, used fluid evacuation (UC)	6	14-3/4	10-3/4	16	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							60' Bus Repair Bay (10) [Continued]							
●	●			●			7780	Reel bank	6	---	---	---	CF/CI	
							9350	Harness, safety, I-beam, trolley, self-retracting	10	11-3/4	8-3/4	24	CF/CI	
								King Pins Press	2					Insufficient information on the equipment to provide a DCS
								Caliper Hoists	6					Insufficient information on the equipment to provide a DCS
							60' Bus Preventative Maintenance (5)							
							Lower Level Work Area (LLWA)							
							1185	Cabinet, storage, shop	5	36	18	78	CF/CI	
							1688	Shelving unit, eight shelf	5	36	18	84	CF/CI	
							1800	Toolbox, rolling	5	24	48		OF/OI	
							1860	Workbench, severe use, six foot	5	72	32	34	CF/CI	
							2835	Vise, five inch	5	9	18	10	CF/CI	
							5442	Lift, parts, straddle	1	84	62	372	CF/CI	
●	●	●	●	●			5558	Lift, man, mobile, LLWA	5	138	63	58	CF/CI	
●			●	●			7541	Pump, diaphragm, used fluid evacuation (UC)	2	14-3/4	10-3/4	16	CF/CI	
				●			7575	Hose and dispenser (GO)	5	2	2	10	CF/CI	
●	●						7993	Drain pan, rolling (UC)	5	33	24	11	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Ground Level							
			●				1128	Cabinet, computer, mobile	3	26	24	68	CF/CI	
							1860	Workbench, severe use, six foot	5	72	32	34	CF/CI	
							2835	Vise, five inch	5	9	18	10	CF/CI	
			●				3540	Tank, parts cleaning, 15 gallon	3	36	22	38-1/2	OF/OI	
●	●			●			7780	Reel bank	3	---	---	---	CF/CI	
●	●						9315	Cover, safety, metal	96	38	40-1/2	2	CF/CI	
							Upper Level Work Platform (ULWP)							
							1860	Workbench, severe use, six foot	2	72	32	34	CF/CI	
							2835	Vise, five inch	2	9	18	10	CF/CI	
●	●	●	●	●			5010	Crane, bridge, top running, 5 ton	2	0	0	0	CF/CI	
							60' Bus Tire Bay (1)							
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
							2835	Vise, five inch	1	9	18	10	CF/CI	
●	●		●	●			5692	Lift, axle, scissor, adjustable, 90,000 pound	1	---	66	---	CF/CI	
●	●			●			7710	Reel bank	2	---	---	---	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							60' Bus Minor Body Repair (1)							
			●				1128	Cabinet, computer, mobile	1	26	24	68	CF/CI	
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
							2835	Vise, five inch	1	9	18	10	CF/CI	
●	●		●	●			5630	Lift, axle, three post, 105,000 pound, shallow design	1	25-3/8	14-1/4	32-7/8	CF/CI	
							5645	Lift, parallelogram, 75,000 pounds, 48 feet	1	392-1/2	0	69	CF/CI	
●	●			●			7710	Reel bank	2	---	---	---	CF/CI	
							Minor Body Shop							
							1183	Cabinet, storage, heavy duty	1	48	24	78	CF/CI	
							1183	Cabinet, storage, heavy duty	1	48	24	78	CF/CI	
							1183	Cabinet, storage, heavy duty	?	48	24	78	CF/CI	
							1183	Cabinet, storage, heavy duty	3	48	24	78	CF/CI	
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1200	Cart, parts	5	24	48	33-1/2	CF/CI	
							1421	Rack, arm, single face, six foot wide	1	74	22-1/4	84	CF/CI	
	●						1456	Rack, bulk storage, six foot	2	72	24	96	CF/CI	
							1476	Rack, glass, portable	4	72	48	87	CF/CI	
							1625	Rack, sheet metal, five bay	1	120	84	36	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Minor Body Shop [Continued]							
							1801	Toolbox	2	28	17	35	OF/OI	
							1806	Workstation, electronics, static dissipative, six foot, with drawers	4	72	36	52	CF/CI	
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
							1950	Cabinet, flammable materials, large	5	43	18	65	CF/CI	
							2105	Press, air/hydraulic, 25 ton	1	42-1/2	30	81	CF/CI	
							2610	Drill press, variable speed, 20 inch	1	22	36	69	CF/CI	
							2678	Sander, belt/disc	1	24	31-1/4	54-1/2	CF/CI	
							2692	Saw, band, vertical, 14 inch	1	20	20	68	CF/CI	
							2698	Saw, cutoff, abrasive, 14 inch	1	11 3/4	19 3/4	25 1/4	CF/CI	
							2765	Torch, oxyacetylene, with cart	1	28	16-1/2	43-1/2	CF/CI	
							2780	Cutter, plasma	1	18	36	35	CF/CI	
							2780	Cutter, plasma	1	18	36	35	CF/CI	
							2835	Vise, five inch	1	9	18	10	CF/CI	
							2838	Vise, eight inch	4	10 3/4	20 1/2	13 1/4	CF/CI	
							2885	Buffer/grinder, eight inch, with pedestal	1	24	13	47	CF/CI	
							3085	Cabinet, abrasive blast, with dust collector	1	65	25	64	CF/CI	
								Plate Shear, table top, 8-inch (Dayton #4YG37A)	1				OF/OI	Insufficient information on the equipment to provide a DCS
								Clean air duster, down draft (ICA #00301)	1				OF/OI	Insufficient information on the equipment to provide a DCS
								Sander/Vacuum Combo (Festool Cleantec)	2				OF/OI	Insufficient information on the equipment to provide a DCS

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Minor Body Shop [Continued]							
								Sander/Vacuum Combo (Mirka)	2				OF/OI	Insufficient information on the equipment to provide a DCS
								Wet/Dry Vac, 19-gallon (Nilfisk #302001540)	2				OF/OI	Insufficient information on the equipment to provide a DCS
								Sander/Vacuum Combo, 17-gallon (Dynabrade #61301)	1				OF/OI	Insufficient information on the equipment to provide a DCS
								Ram Kit, hydraulic, 4-ton	1				OF/OI	Insufficient information on the equipment to provide a DCS
								Ram Kit, hydraulic, 10-ton	1				OF/OI	Insufficient information on the equipment to provide a DCS
								Heat lamps, portable (Infratech #SRV-1615)	2				OF/OI	Insufficient information on the equipment to provide a DCS
							2740	Welder, MIG, with cart	1	18	37	36	CF/CI	
							2742	Welder, MIG, portable	1	18	37	36	CF/CI	
							2740	Welder, MIG, with cart	1	18	37	36	CF/CI	
							2760	Welder, TIG	1	18-1/2	43	31-1/2	CF/CI	
								Tennsmith 52" Electric Shear (#LM410R)	1					Insufficient information on the equipment to provide a DCS
							2672	Roller, bender, plate, hand operated	1	68	22	50	CF/CI	
●	●			●			7710	Reel bank	1	---	---	---	CF/CI	
								Body Shop Office Furniture	1					Insufficient information on the equipment to provide a DCS
								Computer Workstations	2					Insufficient information on the equipment to provide a DCS
							60' Bus Chassis Wash (1)							
			●	●			5645	Lift, parallelogram, 75,000 pounds, 48 feet	1	576	112	63	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Wash Equipment Room							
●	●	●	●	●			3718	Washer, high pressure, hot water, 4 GPM	2	47-1/2	21	51	CF/CI	
							Common Work Area (CWA) (2)							
							1185	Cabinet, storage, shop	4	36	18	78	CF/CI	
							1445	Storage unit, 48 bin	4	36	18	84	CF/CI	
							1860	Workbench, severe use, six foot	2	72	32	34	CF/CI	
	●						1950	Cabinet, flammable materials, large	4	43	18	65	CF/CI	
							2102	Press, hydraulic, 20 ton	2	31	30	74	CF/CI	
	●		●				2610	Drill press, variable speed, 20 inch	2	22	36	69	CF/CI	
			●				2689	Saw, band, horizontal, large	2	72	60	37	CF/CI	
			●				2698	Saw, cutoff, abrasive, 14 inch	2	11	19-3/4	23-5/8	CF/CI	
							2835	Vise, five inch	2	9	18	10	CF/CI	
			●				2880	Buffer/grinder, eight inch, with dust collector	2	24-3/4	41	41-3/4	CF/CI	
			●	●			3085	Cabinet, abrasive blast, with dust collector	2	38	25	64	CF/CI	
●	●	●	●	●			3555	Washer, parts, automatic, front load	2	50	62	69	CF/CI	
							1960	Gas Cylinder Storage (propane)	1	62	29	82	CF/CI	
							1960	Gas Cylinder Storage (acetylene)	1	62	29	82	CF/CI	
							1960	Gas Cylinder Storage (oxygen)	1	62	29	82	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
								Common Work Area (CWA) (2) [Continued]						
							1960	Gas Cylinder Storage (argon)	1	62	29	82	CF/CI	
								Portable Fan, Large	2				OF/OI	Insufficient information on the equipment to provide a DCS
								Portable Equipment Storage (PES) (2)						
			●				2440	Scrubber, floor, walk behind, 28 inch path, battery operated	2	37-1/2	64	43	CF/CI	
			●				2740	Welder, MIG, with cart	2	18	36	35	CF/CI	
			●				2750	Welder, multiprocess	2	38	23	30	CF/CI	
			●				2760	Welder, TIG	2	18-1/2	43	31-1/2	CF/CI	
							2770	Screen, welding	2	144	18	77-1/2	CF/CI	
			●	●			3275	Extractor, fume, welding, portable, 1,200 CFM	2	24	49-1/4	31-1/4	CF/CI	
				●			7995	Receiver, 25 gallon, portable (UC)	2	24	24	45	CF/CI	
				●			7996	Receiver, 25 gallon, portable (UO)	2	24	24	45	CF/CI	
								Tool Box Storage						
								Tool boxes provided by the SFMTA or Mechanics/Technicians						

EQUIPMENT LIST
3 LEVEL

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Tool Storage							
●							1098	Board, peg, tool	4	72	1/2	36	CF/CI	
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	
							Cleaning Equipment Storage (Ground Level)							
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1204	Cart, cleaning	4	21-3/4	46	38-3/8	CF/CI	
	●						1456	Rack, bulk storage, six foot	4	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	4	36	18	84	CF/CI	
	●						1950	Cabinet, flammable materials, large	2	43	18	65	CF/CI	
							1966	Pallet, containment, hazardous materials, four drum	2	49	49	10-1/4	CF/CI	
							AC Shop/Storage							
							10001	Rack, AC	2	---	---	---	OF/OI	
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1188	Cabinet, storage, shop, overhead	1	36	13	27	CF/CI	
							1860	Workbench, severe use, six foot	2	72	32	34	CF/CI	
	●						1950	Cabinet, flammable materials, large	2	43	18	65	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							AC Shop/Storage [Continued]							
							2835	Vise, five inch	2	9	18	10	CF/CI	
							3288	Fume extraction arm, bench mounted	1	15	11	60	CF/CI	
							Battery Rebuild Shop							
							10002	Rack, battery	1				OF/OI	SFMTA will custom build
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
	●						1950	Cabinet, flammable materials, large	2	43	18	65	CF/CI	
							2835	Vise, five inch	1	9	18	10	CF/CI	
							Tire Shop/Storage							
●	●		●	●			1632	Carousel, storage, tire, 44 inch	2	179	112	---	CF/CI	
●	●						1636	Rack, tire, heavy duty, one tier	1	60	26	47-1/2	CF/CI	
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
			●	●			2353	Changer, heavy duty, 44 inch max tire	1	78	48	36	CF/CI	
	●		●	●			2363	Balancer, tire, heavy duty	1	93	62	84	CF/CI	
	●		●	●			2365	Cage, inflation, tire	1	28	36	60	CF/CI	
				●			2368	Spreader, tire	1	25	35	17	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Tire Shop/Storage [Continued]							
							2835	Vise, five inch	1	9	18	10	CF/CI	
●	●			●			7710	Reel bank	1	---	---	---	CF/CI	
							Lube/Compressor Room							
				●			7520	Pump, air piston, 10:1 ratio	6	8 dia.	---	28-1/2	CF/CI	
●				●			7531	Pump, diaphragm, non-mixing (EC)	1	14-3/4	10-1/4	16	CF/CI	
	●						7907	Tank, double wall, polyethylene, 275 gallon	1	47 dia.	---	58-1/2	CF/CI	
	●	●	●	●			7970	Tank, double wall, cube, 500 gallon	7	61	46	61	CF/CI	
●	●	●	●	●			8276	Compressor, air, screw, rotary, 40 HP, with integral dryer	2	69-5/8	35-3/8	60-1/4	CF/CI	
●	●			●			8637	Receiver, vertical mounted, 400 gallon	1	36 dia.	---	101	CF/CI	
							Electronic Bench Shop							
							10003	Equipment, test, electronic	1				OF/OI	
	●						1110	Cabinet, 10 drawer, modular	4	30	27-3/4	59	CF/CI	
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1745	Stool, electronic station, anti-static	6	18	18	34-1/4	CF/CI	
			●				1805	Workstation, electronics, static dissipative, five foot, with shelf	6	60	30	33-1/2	CF/CI	
							3288	Fume extraction arm, bench mounted	1	15-1/4	11-3/4	60	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Electronic Bench Shop [Continued]							
								Signal Cabinet Testing Rack	2				OF/OI	Insufficient information on the equipment to provide a DCS
								Strong hold cabinet (OF/CI)	3				OF/OI	Insufficient information on the equipment to provide a DCS
							FARE BOX AND CLIPPER CARD READER REPAIR SHOP (Not included in Equipment Layout Drawings)							
							Incoming and Outgoing Device Storage							
	●						1456	Rack, bulk storage, six foot	4	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	4	36	18	84	CF/CI	
							Shop							
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	
							1860	Workbench, severe use, six foot	2	72	32	34	CF/CI	
							1950	Cabinet, flammable materials, large	1	43	18	65	CF/CI	
	●		●				2610	Drill press, variable speed, 20 inch	1	22	36	69	CF/CI	
							2835	Vise, five inch	2	9	18	10	CF/CI	
							2885	Buffer/grinder, eight inch, with pedestal	1	24	13	47	CF/CI	
							3288	Fume extraction arm, bench mounted	1	15-1/4	11-1/4	60	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Storage							
							1185	Cabinet, storage, shop	5	36	18	78	CF/CI	
							1688	Shelving unit, eight shelf	5	36	18	84	CF/CI	
							Parts Storage							
							1110	Cabinet, 10 drawer, modular	2	30	28	59	CF/CI	
	●						1456	Rack, bulk storage, six foot	8	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	8	36	18	84	CF/CI	
			●				5410	Forklift, electric, 10,000 pound	3	127-3/4	58-3/4	91	OF/CI	
							OFFICE							
								Safe	2				OF/OI	Insufficient information on the equipment to provide a DCS
							SERVICE AND CLEAN							
							Service Position (Level 2)							
●	●			●			3300	Tank, mop, with wringer	2	40	25	42	CF/CI	
●	●		●				3610	Vacuum, canister, stainless steel	4	20-1/8	26	52	CF/CI	
●	●			●			7710	Reel bank	3	---	---	---	CF/CI	
								96-gallon trash containers (black, blue, + green)	6				OF/OI	Insufficient information on the equipment to provide a DCS
								Biohazard Bin	1				OF/OI	Insufficient information on the equipment to provide a DCS

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Service Position (Level 3)							
●	●			●			3300	Tank, mop, with wringer	2	40	25	42	CF/CI	
●	●		●				3610	Vacuum, canister, stainless steel	4	20-1/8	26	52	CF/CI	
●	●			●			7710	Reel bank	3	---	---	---	CF/CI	
								96-gallon trash containers (black, blue, + green)	6				OF/OI	Insufficient information on the equipment to provide a DCS
								Biohazard Bin	1				OF/OI	Insufficient information on the equipment to provide a DCS
							Bus Washer (1) (Level 2)							
●	●	●	●	●			3834	Washer, bus, drive through, four brush	1	1020	192	170	CF/CI	
							Bus Washer (2) (Level 3)							
●	●	●	●	●			3834	Washer, bus, drive through, four brush	1	1020	192	170	CF/CI	
							Wash Equipment Room (1) (Level 2)							
●	●	●	●	●			3718	Washer, high pressure, hot water, 4 GPM	2	47-1/2	21	51	CF/CI	
							Wash Equipment Room (2) (Level 3)							
●	●	●	●	●			3718	Washer, high pressure, hot water, 4 GPM	2	47-1/2	21	51	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Cleaning Equipment Storage (on Bus Garage Level 2)							
							1185	Cabinet, storage, shop	4	36	18	78	CF/CI	
							1204	Cart, cleaning	8	21-3/4	46	38-3/8	CF/CI	
	●						1456	Rack, bulk storage, six foot	10	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	4	36	18	84	CF/CI	
	●						1950	Cabinet, flammable materials, large	4	43	18	65	CF/CI	
							1966	Pallet, containment, hazardous materials, four drum	4	49	49	10-1/4	CF/CI	
							Cleaning Equipment Storage (on Bus Garage Level 3)							
							1185	Cabinet, storage, shop	4	36	18	78	CF/CI	
							1204	Cart, cleaning	8	21-3/4	46	38-3/8	CF/CI	
	●						1456	Rack, bulk storage, six foot	10	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	4	36	18	84	CF/CI	
	●						1950	Cabinet, flammable materials, large	4	43	18	65	CF/CI	
							1966	Pallet, containment, hazardous materials, four drum	4	49	49	10-1/4	CF/CI	
							PARTS							
							Parts Storage							
●							1098	Board, peg, tool	4	72	1/2	36	CF/CI	
●	●						1106	Cabinet, six drawer, modular, underbench	10	30	27-3/4	33-1/2	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Parts Storage [Continued]							
●	●	●	●				1500	Storage system, 2,000 pound capacity, with rack mounted crane	1	203	436	184	CF/CI	
	●						1536	Rack, pallet, ten foot, two tier	2	126	36	120	CF/CI	
							1688	Shelving unit, eight shelf	42	36	18	84	CF/CI	
●	●	●	●	●			1730	Storage system, automated, vertical tray	2	121	110	250	CF/CI	
							1753	Table, layout, stainless steel top, eight foot	3	96	36	34	CF/CI	
			●				5404	Forklift, electric, 4,000 pound, stand up	1	93	40-1/4	95	CF/CI	
							5420	Forklift, 10,000 pound, LPG	1	175	69	90-1/2	CF/CI	
							1950	Cabinet, flammable materials, large	8	43	18	65	OF/CI	
							Battery Storage							
	●						1536	Rack, pallet, ten foot, two tier	2	126	36	120	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	
							SHARED							
							Building Storage							
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
	●						1456	Rack, bulk storage, six foot	2	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	
	●						1950	Cabinet, flammable materials, large	2	43	18	65	CF/CI	

EQUIPMENT LIST
3 LEVEL

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Meet and Greet							
●	●	●	●	●			5558	Lift, man, mobile, LLWA	1	138	63	58	CF/CI	
							7242	Fluid management system, wired	1	---	---	---	CF/CI	
							Revenue Office							
							1745	Stool, electronic station, anti-static	1	19	18	29	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	
			●				1805	Workstation, electronics, static dissipative, five foot, with shelf	1	60	30	33-1/2	CF/CI	
●							9900	Vault, collection, revenue	2	32	36	66	CF/CI	
●	●		●				9910	Probe, farebox, with software system	2	---	---	---	CF/CI	
								Isolation Boxes	2					Insufficient information on the equipment to provide a DCS
							Sheet Metal Shop							
							1185	Cabinet, storage, shop	2	36	18	78	CF/CI	
	●						1421	Rack, arm, single face, six foot wide	1	74-3/8	22-1/8	84	CF/CI	
							1435	Rack, vertical	1	36	24	84	CF/CI	
	●						1436	Rack, sheet, vertical	1	50	44	84	CF/CI	
							1445	Storage unit, 48 bin	1	36	18	84	CF/CI	
	●						1456	Rack, bulk storage, six foot	2	72	24	96	CF/CI	
							1793	Table, welding, large	1	98	62	38	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Sheet Metal Shop [Continued]							
							1860	Workbench, severe use, six foot	1	72	32	34	CF/CI	
	●						1950	Cabinet, flammable materials, large	1	43	18	65	CF/CI	
	●						2102	Press, hydraulic, 20 ton	1	31	30	74	CF/CI	
	●		●				2610	Drill press, variable speed, 20 inch	1	22	36	69	CF/CI	
	●		●				2690	Saw, band, horizontal, small	1	40	84	49	CF/CI	
			●				2698	Saw, cutoff, abrasive, 14 inch	1	11	19-3/4	23-5/8	CF/CI	
	●		●				2742	Welder, MIG, portable	1	19	40	30	CF/CI	
			●				2760	Welder, TIG	1	18-1/2	43	31-1/2	CF/CI	
							2765	Torch, oxyacetylene, with cart	1	28	16-1/2	43-1/2	CF/CI	
							2770	Screen, welding	2	144	18	77-1/2	CF/CI	
			●	●			2780	Cutter, plasma	1	18	36	35	CF/CI	
							2835	Vise, five inch	1	9	18	10	CF/CI	
			●				2880	Buffer/grinder, eight inch, with dust collector	1	24-3/4	41	41-3/4	CF/CI	
			●	●			3085	Cabinet, abrasive blast, with dust collector	1	38	25	64	CF/CI	
●	●	●	●				3290	Fume extraction arm, welding	1	---	---	---	CF/CI	

Discipline Coordination							Equip			Dimensions (inches)			Furnish/	
Arch	Struc	Mech	Elec	Plum	Priority Equipment	Seismic Certification	ID#	Description	Qty	Length	Width	Height	Install	Project Comments
							Facilities Stationary Engineer							
●							1098	Board, peg, tool	1	72	1/2	36	CF/CI	
●	●						1106	Cabinet, six drawer, modular, underbench	2	30	27-3/4	33-1/2	CF/CI	
	●						1110	Cabinet, 10 drawer, modular	2	30	27-3/4	59	CF/CI	
							1185	Cabinet, storage, shop	1	36	18	78	CF/CI	
	●						1456	Rack, bulk storage, six foot	1	72	24	96	CF/CI	
							1688	Shelving unit, eight shelf	2	36	18	84	CF/CI	

Equipment Datasheets/Cutsheets

1098 Equipment Datasheet

Manufacturer:	**Kennedy Manufacturing Company**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**50004UGY**						**Equipment**		**72**		**1/2**		**36**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	--- / ---		**Front** / **Back**	36 / ---	**Above** / **Below**	--- / ---
DISCIPLINE COORDINATION:														
Architectural	Wall mounted 36 inches above finish floor typically.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		---			
									Volume (CFM)		---			
Electrical	---						**Connection Size**		Requirements	---	---	---		
									Voltage	---	---	---		
									Phase	---	---	---		
									Horsepower (HP)	---	---	---		
									Amps	---	---	---		
							Connection Type		---					
Plumbing	---						**Domestic Water**		Connection (inches)		---			
									Flow Rate (GPM)		---			
									Capacity (PSI)		---			
							Natural Gas		Connection (inches)		---			
									Capacity (BTU)		---			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		---			
									Volume (CFM)		---			
									Capacity (PSI)		---			

Equipment Description:

Board, peg, tool

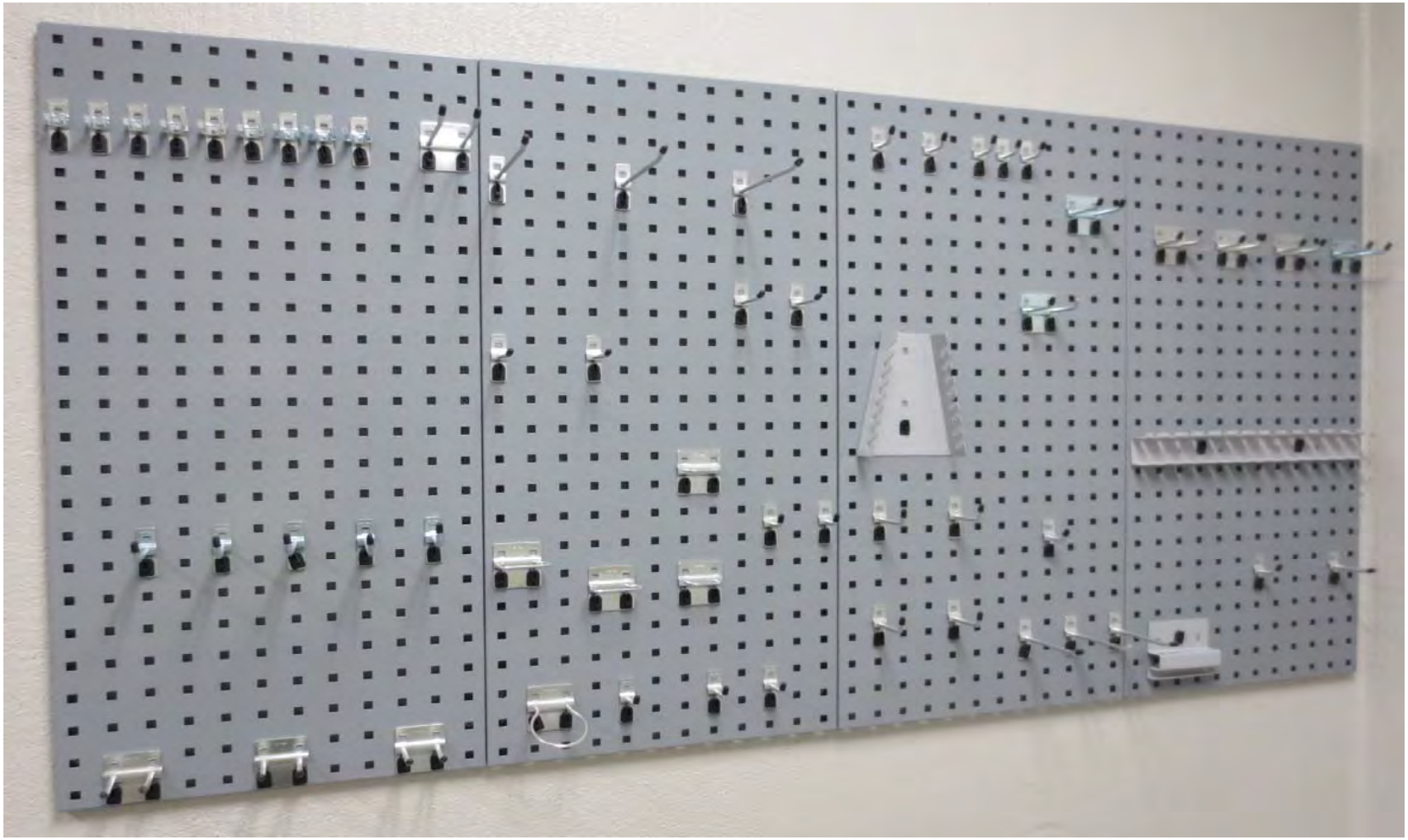
EQ ID Number:

1098

1098 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Board, peg, tool	**1098**

Manufacturer: Kennedy Manufacturing Company **Model No.:** 50004UGY



1106 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**4433**						**Equipment**	**30**		**27-3/4**		**33-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 42 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Unit to be installed below workbench or architectural millwork; Coordinate with equipment to determine millwork location and height AFF.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Unit to be anchored to the floor.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**----**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, six drawer, modular, underbench

EQ ID Number:

1106

1106 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, six drawer, modular, underbench	**1106**

Manufacturer: Equipto **Model No.:** 4433



1110 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**4424**						**Equipment**	**30**		**27-3/4**		**59**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** 12 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Unit weight: 462 pounds; full weight: 4,462 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, 10 drawer, modular

EQ ID Number:

1110

1110 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, 10 drawer, modular	**1110**

Manufacturer: Equipto **Model No.:** 4424



1128 Equipment Datasheet

Manufacturer:	**Strong Hold**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**26-CC-LCD-240-1SOSRK with casters**						**Equipment**	**26**		**24**		**68**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**6**	**Front**	**36**	**Above**	**---**
								Right	**6**	**Back**	**6**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	Unit is mobile; provide standard grounded receptacles and data receptacles throughout usable area(s).	**Connection Size**	Requirements	**Unit**	**Fan**	**---**	
			Voltage	**120**	**120**	**---**	
			Phase	**1**	**1**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**15**	**15**	**---**	
		Connection Type	**Provide standard grounded receptacle**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Sink (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Cabinet, computer, mobile

EQ ID Number:

1128

1128 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, computer, mobile	**1128**

Manufacturer:	Strong Hold	Model No.:	26-CC-LCD-240-1SOSRK with casters



1183 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**ICL35133**						**Equipment**	**48**		**24**		**78**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 36 **Back** ---		**Above** 6 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, storage, heavy duty

EQ ID Number:

1183

1183 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, storage, heavy duty	**1183**

Manufacturer: Equipto **Model No.:** ICL35133



1185 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1710**						**Equipment**	**36**		**18**		**78**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 36 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, storage, shop

EQ ID Number:

1185

1185 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, storage, shop	**1185**

Manufacturer: Equipto **Model No.:** 1710



1188 Equipment Datasheet

Manufacturer:		**Equipto**					**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**1735DI**					**Equipment**	**36**		**18**		**29**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 36 **Back** ---		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural		Coordinate wall mounting of unit with structural.					**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural		Units shall be wall mounted. Weight 79.3 pounds; capacity 400 pounds.					**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical		---					**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical		---					**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing		---					**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, storage, shop, wall mounted

EQ ID Number:

1188

1188 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, storage, shop, wall mounted	**1188**

Manufacturer: Equipto **Model No.:** 1735DI



1200 Equipment Datasheet

Manufacturer:	**Pucel Enterprises, Inc.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)			
Model No.:	**2448-DT-3-P**						**Equipment**		**24**		**48**		**33-1/4**			
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---			
DISCIPLINE COORDINATION:																
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**					
Structural	Weight: 180 pounds.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**					
Mechanical	---						**Venting**		Connection (inches)		**---**					
									Volume (CFM)		**---**					
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**				
									Voltage	**---**	**---**	**---**				
									Phase	**---**	**---**	**---**				
									Horsepower (HP)	**---**	**---**	**---**				
									Amps	**---**	**---**	**---**				
							Connection Type		**---**							
Plumbing	---						**Domestic Water**		Connection (inches)		**---**					
									Flow Rate (GPM)		**---**					
									Capacity (PSI)		**---**					
							Natural Gas		Connection (inches)		**---**					
									Capacity (BTU)		**---**					
							Drain		Floor Drain (Y/N)		**N**					
							Compressed Air		Connection (inches)		**---**					
									Volume (CFM)		**---**					
									Capacity (PSI)		**---**					

Equipment Description:	**EQ ID Number:**
Cart, parts	**1200**

1200 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cart, parts	**1200**

Manufacturer: Pucel Enterprises, Inc. **Model No.:** 2448-DT-3-P



1204 Equipment Datasheet

Manufacturer:	**Rubbermaid Commercial Products**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**6173-88 with accessories**						**Equipment**	**21-3/4**		**46**		**38-3/8**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ----	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cart, cleaning

EQ ID Number:

1204

1204 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cart, cleaning	**1204**

Manufacturer: Rubbermaid Commercial Products **Model No.:** 6173-88 with accessories



1396 Equipment Datasheet

Manufacturer:	**Service Scaffold Co. Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**13-ESL-RH**						**Equipment**	**228**		**30**		**115**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	Elevator requires battery.						**Connection Size**	Requirements	**Battery Charger**	**---**	**---**		
								Voltage	**120**	**---**	**---**		
								Phase	**1**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**1**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Platform, work, roof, portable (set of two)

EQ ID Number:

1396

1396 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Platform, work, roof, portable (set of two)	**1396**

Manufacturer: Service Scaffold Co. Inc. **Model No.:** 13-ESL-RH









1421 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1062-72 with 1063**						**Equipment**		**74-3/8**		**22-1/8**		**84**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	**24** / **24**		**Front** / **Back**	**72** / **0**	**Above** / **Below**	**24** / **---**
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate anchor bolt requirements with local codes; Weight: 162 pounds; 4,550 Total Capacity.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Rack, arm, single face, six foot wide

EQ ID Number:

1421

1421 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, arm, single face, six foot wide	**1421**

Manufacturer: Equipto **Model No.:** 1062-72 with 1063



1425 Equipment Datasheet

Manufacturer:	**Lyon Workspace Products**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**CSRSF14448S starter with CSRSF14448 add-on**						**Equipment**	**72**		**56**		**144**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**84**	**Front**	**120**	**Above**	**48**
								Right	**84**	**Back**	**---**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**---**	**---**	**---**	
			Voltage	**---**	**---**	**---**	
			Phase	**---**	**---**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**---**	**---**	**---**	
		Connection Type	**---**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Rack, arm, single face, six foot wide, 15,000 pound

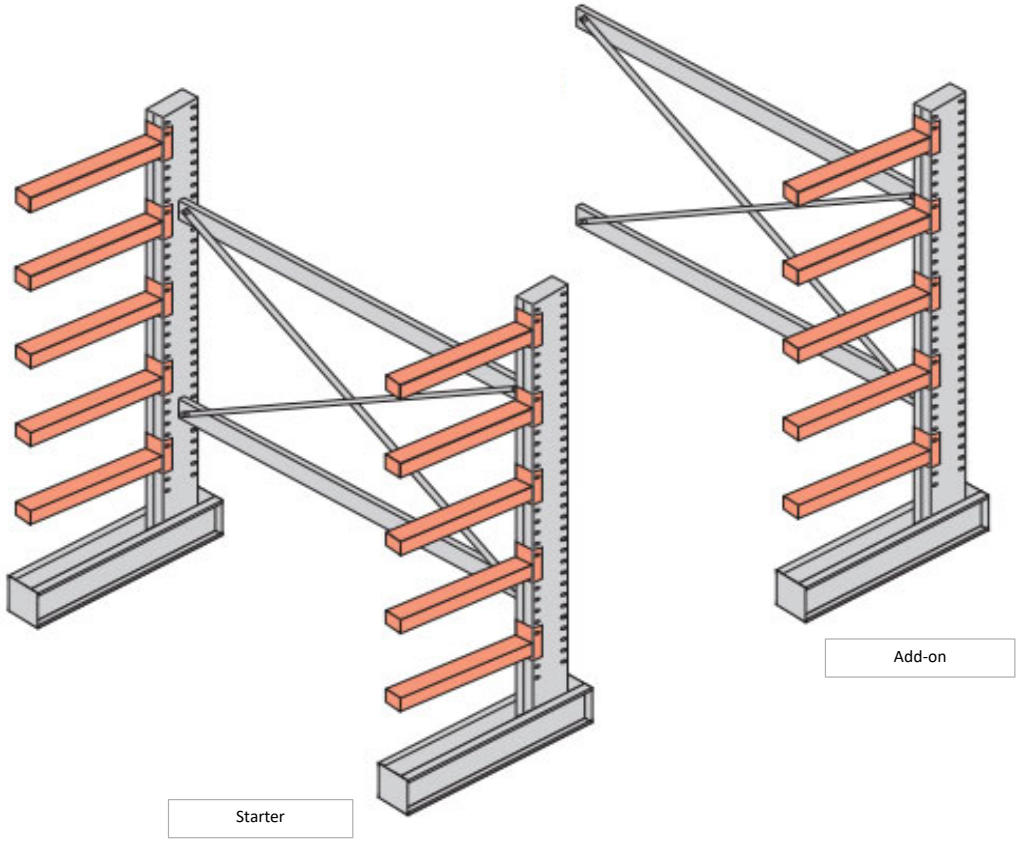
EQ ID Number:

1425

1425 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, arm, single face, six foot wide, 15,000 pound	**1425**

Manufacturer:	Lyon Workspace Products	Model No.:	CSRSF14448S starter with CSRSF14448 add-on



1435 Equipment Datasheet

Manufacturer:	**SPG/Jarke/Cillis**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**CR-834**						**Equipment**	**36**		**24**		**84**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 36 **Back** ---		**Above** 24 **Below** ---	

DISCIPLINE COORDINATION:									
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Mechanical	---	**Venting**	Connection (inches)	---					
			Volume (CFM)	---					
Electrical	---	**Connection Size**	Requirements	---	---	---			
			Voltage	---	---	---			
			Phase	---	---	---			
			Horsepower (HP)	---	---	---			
			Amps	---	---	---			
		Connection Type	---						
Plumbing	---	**Domestic Water**	Connection (inches)	---					
			Flow Rate (GPM)	---					
			Capacity (PSI)	---					
		Natural Gas	Connection (inches)	---					
			Capacity (BTU)	---					
		Drain	Floor Drain (Y/N)	**N**					
		Compressed Air	Connection (inches)	---					
			Volume (CFM)	---					
			Capacity (PSI)	---					

Equipment Description:

Rack, vertical

EQ ID Number:

1435

1435 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, vertical	**1435**

Manufacturer: SPG/Jarke/Cillis **Model No.:** CR-834



1436 Equipment Datasheet

Manufacturer:	**Vestil Manufacturing**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**VSSR-15**						**Equipment**	**50**		**44**		**84**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** 18 **Below** ---	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Approximate unit weight: 400 pounds. Weight capacity: 6,000 pounds (1,500 pounds per bay) Unit to be anchored to the floor.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	---			
			Volume (CFM)	---			
Electrical	---	**Connection Size**	Requirements	---	---	---	
			Voltage	---	---	---	
			Phase	---	---	---	
			Horsepower (HP)	---	---	---	
			Amps	---	---	---	
		Connection Type	---				
Plumbing	---	**Domestic Water**	Connection (inches)	---			
			Flow Rate (GPM)	---			
			Capacity (PSI)	---			
		Natural Gas	Connection (inches)	---			
			Capacity (BTU)	---			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	---			
			Volume (CFM)	---			
			Capacity (PSI)	---			

Equipment Description:

Rack, sheet, vertical

EQ ID Number:

1436

1436 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, sheet, vertical	**1436**

Manufacturer: Vestil Manufacturing **Model No.:** VSSR-15



1444 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** mm (inches)		**Width** mm (inches)		**Height** mm (inches)	
Model No.:	**V-Grip Shelving with accessories**						**Equipment**	**36**		**12**		**36**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight: 100 pounds, Capacity: 700 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Storage unit, 36 bin, short

EQ ID Number:

1444

1444 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Storage unit, 36 bin, short	**1444**

Manufacturer:	Equipto	Model No.:	V-Grip Shelving with accessories



1445 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**673-9S starter and 673-9A add-on with accessories**						**Equipment**	**36**		**18**		**84**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** 2		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Empty weight: 381 pounds; full weight: 1,081 pounds.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		---			
								Volume (CFM)		---			
Electrical	---						**Connection Size**	Requirements	---	---	---		
								Voltage	---	---	---		
								Phase	---	---	---		
								Horsepower (HP)	---	---	---		
								Amps	---	---	---		
							Connection Type	---					
Plumbing	---						**Domestic Water**	Connection (inches)		---			
								Flow Rate (GPM)		---			
								Capacity (PSI)		---			
							Natural Gas	Connection (inches)		---			
								Capacity (BTU)		---			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		---			
								Volume (CFM)		---			
								Capacity (PSI)		---			

Equipment Description:	**EQ ID Number:**
Storage unit, 48 bin	**1445**

1445 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Storage unit, 48 bin	**1445**

Manufacturer: Equipto **Model No.:** 673-9S starter and 673-9A add-on with accessories



1456 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1028D62S starter and 1028D62A add-on with accessories**						**Equipment**	**72**		**24**		**96**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 72 **Back** 6		**Above** 48 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Unit to be anchored to the floor.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Rack, bulk storage, six foot

EQ ID Number:

1456

1456 Equipment Cutsheet

Equipment Description:

Rack, bulk storage, six foot

EQ ID Number:

1456

Manufacturer: Equipto

Model No.: 1028D62S starter and 1028D62A add-on with accessories



1476 Equipment Datasheet

Manufacturer:	**Unruh**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**A-frame Cart**						**Equipment**		**96**		**42**		**72**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	--- / ---		**Front** / **Back**	--- / ---	**Above** / **Below**	--- / ---
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Mechanical	---						**Venting**	Connection (inches)	---					
								Volume (CFM)	---					
Electrical	---						**Connection Size**	Requirements	---		---		---	
								Voltage	---		---		---	
								Phase	---		---		---	
								Horsepower (HP)	---		---		---	
								Amps	---		---		---	
							Connection Type	---						
Plumbing	---						**Domestic Water**	Connection (inches)	---					
								Flow Rate (GPM)	---					
								Capacity (PSI)	---					
							Natural Gas	Connection (inches)	---					
								Capacity (BTU)	---					
							Drain	Floor Drain or Floor Sink (Y/N)	**N**					
							Compressed Air	Connection (inches)	---					
								Volume (CFM)	---					
								Capacity (PSI)	---					

Equipment Description:

Rack, glass, portable

EQ ID Number:

1476

1476 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, glass, portable	**1476**

Manufacturer: Unruh **Model No.:** A-frame Cart



1500 Equipment Datasheet

Manufacturer:	**Stanley Vidmar**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**2k Stak System**						**Equipment**	**203**		**436**		**184**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** 6 **Right** 6		**Front** 96 **Back** 6		**Above** 36 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Coordinate OSHA clearances, overhead door clearances, duct and piping routing with mechanical/plumbing and design with structural.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate the design of slab with manufacturer to accommodate the weight of system and its loaded pallets. Reference design details.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	Coordinate duct routing and HVAC equipment with equipment to avoid conflits with bridge crane travel.						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**460**	**---**	**---**		
								Phase	**3**	**---**	**---**		
								Horsepower (HP)	**1**	**---**	**---**		
								Amps	**30**	**---**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	Coordinate pipe routing with equipment to avoid conflicts with bridge crane travel.						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Storage system, 2,000 pound capacity, with rack mounted crane

EQ ID Number:

1500

1500 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Storage system, 2,000 pound capacity, with rack mounted crane	**1500**

Manufacturer: Stanley Vidmar **Model No.:** 2k Stak System



1536 Equipment Datasheet

Manufacturer:	**Lyon Workspace Products**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Uprights 36M120, Beams S120, Decking WD5836H with accessories**						**Equipment**	**126**		**36**		**120**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 144 **Back** 6		**Above** 60 **Below** ---	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Coordinate anchor bolt requirements with local codes.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	---			
			Volume (CFM)	---			
Electrical	---	**Connection Size**	Requirements	---	---	---	
			Voltage	---	---	---	
			Phase	---	---	---	
			Horsepower (HP)	---	---	---	
			Amps	---	---	---	
		Connection Type	---				
Plumbing	---	**Domestic Water**	Connection (inches)	---			
			Flow Rate (GPM)	---			
			Capacity (PSI)	---			
		Natural Gas	Connection (inches)	---			
			Capacity (BTU)	---			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	---			
			Volume (CFM)	---			
			Capacity (PSI)	---			

Equipment Description:

Rack, pallet, ten foot, two tier

EQ ID Number:

1536

1536 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, pallet, ten foot, two tier	**1536**

Manufacturer:	Lyon Workspace Products	Model No.:	Uprights 36M120, Beams S120, Decking WD5836H with accessories



1625 Equipment Datasheet

Manufacturer:	**Modern Equipment Company, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**VSR5**						**Equipment**	**120**		**84**		**31**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**36**	**Front**	**84**	**Above**	**60**
								Right	**36**	**Back**	**24**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Weight capacity: 6,500 pounds (per bay) Weight: 882 pounds	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**---**	**---**	**---**	
			Voltage	**---**	**---**	**---**	
			Phase	**---**	**---**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**---**	**---**	**---**	
		Connection Type	**---**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Sink (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Rack, sheet metal, five bay

EQ ID Number:

1625

1625 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, sheet metal, five bay	**1625**

Manufacturer: Modern Equipment Company, Inc. **Model No.:** VSR5



1632 Equipment Datasheet

Manufacturer:	**Vidir Vertical Storage Systems**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**HT54162-0563-12 OR HT54193-0663-12 OR HT54225-0763-12 OR HT54256-0863-12 OR HT54288-0963-12 OR HT54319-1063-12**						**Equipment**		**179**		**112**		**---**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**6**	**Front**	**72**	**Above**	**6**
								Right	**24**	**Back**	**6**	**Below**	**0**

DISCIPLINE COORDINATION:

Architectural	Coordinate with building clear heights.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Coordinate with building clear heights. Approximate unit weight: 4,500 pounds. Unit to be anchored to the floor.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**Unit**	**---**	**---**	
			Voltage	**460**	**---**	**---**	
			Phase	**3**	**---**	**---**	
			Horsepower (HP)	**4**	**---**	**---**	
			Amps	**15**	**---**	**---**	
		Connection Type	**Provide disconnect**				
Plumbing	Verify fire protection requirements with local authority having jurisdiction.	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Carousel, storage, tire, 44 inch

EQ ID Number:

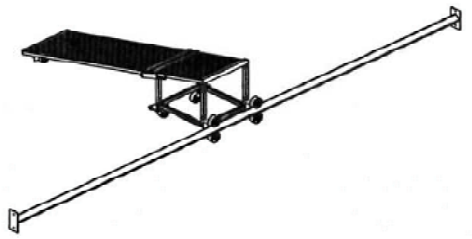
1632

1632 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Carousel, storage, tire, 44 inch	**1632**

Manufacturer:	Vidir Vertical Storage Systems	Model No.:	HT54162-0563-12 OR HT54193-0663-12 OR HT54225-0763-12 OR HT54256-0863-12 OR





1636 Equipment Datasheet

Manufacturer:	**Jarke Manufacturing**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**TW-3943**						**Equipment**	**60**		**26**		**47-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** 12		**Above** 12 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Provide seismic bracing and anchorage to meet any local, state, and national codes and provisions.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Provide seismic bracing and anchorage to meet any local, state, and national codes and provisions.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Rack, tire, heavy duty, one tier

EQ ID Number:

1636

1636 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Rack, tire, heavy duty, one tier	**1636**

Manufacturer: Jarke Manufacturing **Model No.:** TW-3943



1688 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**773-8S starter with 773-8A add on with accessories**						**Equipment**		**36**		**18**		**84**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** 12 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Shelving unit, eight shelf

EQ ID Number:

1688

1688 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Shelving unit, eight shelf	**1688**

Manufacturer: Equipto

Model No.: 773-8S starter with 773-8A add on with accessories



Add-on



Starter

1730 Equipment Datasheet

Manufacturer:	**Kardex Remstar**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**XP HD 500**						**Equipment**	**121**		**110**		**250**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** --- **Right** 48		**Front** 60 **Back** ---		**Above** 24 **Below** ---	

DISCIPLINE COORDINATION:						
Architectural	Coordinate OSHA clearances, ducting clearances, piping clearances, and design with structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Provide foundation design per Design Details.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	Coordinate ducting and HVAC equipment with equipment and architectural to avoid conflicts with unit.	**Venting**	Connection (inches)	---		
			Volume (CFM)	---		
Electrical	Provide disconnect near unit; Provide data connection adjacent to unit; Provide additional lighting near unit for parts retrieval.	**Connection Size**	Requirements	**Unit**	---	---
			Voltage	**460**	---	---
			Phase	**3**	---	---
			Horsepower (HP)	---	---	---
			Amps	**14.2**	---	---
		Connection Type	**Provide disconnect**			
Plumbing	Coordinate piping with architectural to avoid conflicts with unit.	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Sink (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Storage system, automated, vertical tray

EQ ID Number:

1730

1730 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Storage system, automated, vertical tray	**1730**

Manufacturer: Kardex Remstar **Model No.:** XP HD 500







1745 Equipment Datasheet

Manufacturer:		**Equipto**					**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**1434-04E2EH**						**Equipment**	**18**		**18**		**34-1/4**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural		---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural		---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical		---						**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical		---						**Connection Size**	Requirements	**---**	**---**	**---**	
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
								Connection Type	**---**					
Plumbing		---						**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Drain (Y/N)		**N**			
								Compressed Air	Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Stool, electronic station, anti-static

EQ ID Number:

1745

1745 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Stool, electronic station, anti-static	**1745**

Manufacturer: Equipto **Model No.:** 1434-04E2EH



1753 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**2333D8 with 441D8SS stainless steel**						**Equipment**	**96**		**36**		**34**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**36**	**Front**	**36**	**Above**	**36**
								Right	**36**	**Back**	**36**	**Below**	**---**
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Table, layout, stainless steel top, eight foot

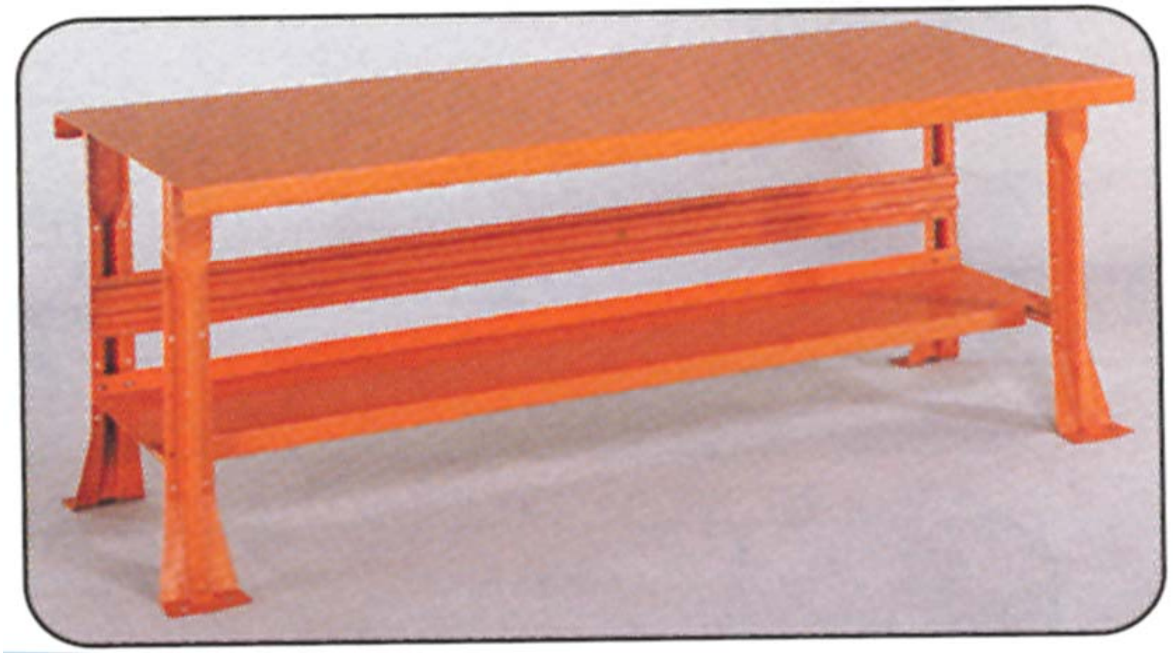
EQ ID Number:

1753

1753 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Table, layout, stainless steel top, eight foot	**1753**

Manufacturer:	Equipto	Model No.:	2333D8 with 441D8SS stainless steel



1793 Equipment Datasheet

Manufacturer:		**Weldsale**					**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)		
Model No.:		**WSC - 58B - BUNDLE**					**Equipment**		**96**		**60**		**32**		
Provided:	Cutsheet	Y	Functional Model	N	Design Details	N	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 36 **Back** 36		**Above** --- **Below** ---			
DISCIPLINE COORDINATION:															
Architectural		---					**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)			**N**			
Structural		Weight: 3,775 pounds					**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)			**N**			
Mechanical		---					**Venting**		Connection (inches)			---			
									Volume (CFM)			---			
Electrical		---					**Connection Size**		Requirements	---	---	---			
									Voltage	---	---	---			
									Phase	---	---	---			
									Horsepower (HP)	---	---	---			
									Amps	---	---	---			
							Connection Type		---						
Plumbing		---					**Domestic Water**		Connection (inches)			---			
									Flow Rate (GPM)			---			
									Capacity (PSI)			---			
							Natural Gas		Connection (inches)			---			
									Capacity (BTU)			---			
							Drain		Floor Drain (Y/N)			**N**			
							Compressed Air		Connection (inches)			---			
									Volume (CFM)			---			
									Capacity (PSI)			---			

Equipment Description:

Table, welding, large

EQ ID Number:

1793

1793 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Table, welding, large	**1793**

Manufacturer: Weldsale **Model No.:** WSC - 58B - BUNDLE



1805 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**388-5C with accessories**							**Equipment**	**60**		**30**		**33-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 36 **Back** ---		**Above** --- **Below** ---		
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Mechanical	---						**Venting**	Connection (inches)	**---**					
								Volume (CFM)	**---**					
Electrical	---						**Connection Size**	Requirements	**Power Strip**	**Instrumental Shelf**	---			
								Voltage	**120**	**120**	---			
								Phase	**1**	**1**	---			
								Horsepower (HP)	**---**	**---**	---			
								Amps	**15**	**15**	---			
							Connection Type	**Provide standard grounded receptacle**						
Plumbing	---						**Domestic Water**	Connection (inches)	**---**					
								Flow Rate (GPM)	**---**					
								Capacity (PSI)	**---**					
							Natural Gas	Connection (inches)	**---**					
								Capacity (BTU)	**---**					
							Drain	Floor Drain or Floor Sink (Y/N)	**N**					
							Compressed Air	Connection (inches)	**---**					
								Volume (CFM)	**---**					
								Capacity (PSI)	**---**					

Equipment Description:

Workstation, electronics, static dissipative, five foot, with shelf

EQ ID Number:

1805

1805 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Workstation, electronics, static dissipative, five foot, with shelf	**1805**

Manufacturer: Equipto **Model No.:** 388-5C with accessories





1806 Equipment Datasheet

Manufacturer:	**Stanley Vidmar**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**SGEIW-1**						**Equipment**	**72**		**36**		**52**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 12 **Right** 12		**Front** 48 **Back** 2		**Above** 36 **Below** ---	

DISCIPLINE COORDINATION:						
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Shipping weight: 625 pounds.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	---	**Venting**	Connection (inches)	---		
			Volume (CFM)	---		
Electrical	Run cord from power strip out back of instrument shelf.	**Connection Size**	Requirements	**Unit**	---	---
			Voltage	**120**	---	---
			Phase	**1**	---	---
			Horsepower (HP)	---	---	---
			Amps	**15**	---	---
		Connection Type	**Provide standard receptacle**			
Plumbing	---	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Drain (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Workstation, electronics, static dissipative, six foot, with drawers

EQ ID Number:

1806

1806 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Workstation, electronics, static dissipative, six foot, with drawers	**1806**

Manufacturer: Stanley Vidmar **Model No.:** SGEIW-1



1860 Equipment Datasheet

Manufacturer:	**Fabricated**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**---**						**Equipment**	**72**		**32**		**34**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** 36 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	**---**						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	**---**						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	**---**						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	**---**						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	**---**						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Workbench, severe use, six foot

EQ ID Number:

1860

1860 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Workbench, severe use, six foot	**1860**

Manufacturer: Fabricated **Model No.:** ---



1950 Equipment Datasheet

Manufacturer:	**Equipto**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**FSC45S**						**Equipment**	**43**		**18**		**65**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Unit to be anchored to the floor.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Cabinet, flammable materials, large

EQ ID Number:

1950

1950 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, flammable materials, large	**1950**

Manufacturer: Equipto **Model No.:** FSC45S



1960 Equipment Datasheet

Manufacturer:	**EGA Products, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**VCC20**						**Equipment**	**60**		**38**		**72**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 60 **Back** ---		**Above** 12 **Below** ---	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Coordinate anchor bolt requirements with local codes.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**---**	**---**	**---**	
			Voltage	**---**	**---**	**---**	
			Phase	**---**	**---**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**---**	**---**	**---**	
		Connection Type	**---**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Cage, storage, gas cylinder, vertical

EQ ID Number:

1960

1960 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cage, storage, gas cylinder, vertical	**1960**

Manufacturer: EGA Products, Inc. **Model No.:** VCC20



1966 Equipment Datasheet

Manufacturer:		**Justrite Manufacturing**					**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**28635**					**Equipment**	**49**		**49**		**10-1/4**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 81 **Back** ---		**Above** 96 **Below** ---	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	---			
			Volume (CFM)	---			
Electrical	---	**Connection Size**	Requirements	---	---	---	
			Voltage	---	---	---	
			Phase	---	---	---	
			Horsepower (HP)	---	---	---	
			Amps	---	---	---	
		Connection Type	---				
Plumbing	---	**Domestic Water**	Connection (inches)	---			
			Flow Rate (GPM)	---			
			Capacity (PSI)	---			
		Natural Gas	Connection (inches)	---			
			Capacity (BTU)	---			
		Drain	Floor Sink (Y/N)	**N**			
		Compressed Air	Connection (inches)	---			
			Volume (CFM)	---			
			Capacity (PSI)	---			

Equipment Description:

Pallet, containment, hazardous materials, four drum

EQ ID Number:

1966

1966 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Pallet, containment, hazardous materials, four drum	**1966**

Manufacturer: Justrite Manufacturing **Model No.:** 28635



2102 Equipment Datasheet

Manufacturer:	**Nugierfroom Corporation**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**H20-6-3F**						**Equipment**	**31**		**30**		**74**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 12 **Right** 24		**Front** 36 **Back** 12		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		---			
								Volume (CFM)		---			
Electrical	---						**Connection Size**	Requirements	---	---	---		
								Voltage	---	---	---		
								Phase	---	---	---		
								Horsepower (HP)	---	---	---		
								Amps	---	---	---		
							Connection Type	---					
Plumbing	---						**Domestic Water**	Connection (inches)		---			
								Flow Rate (GPM)		---			
								Capacity (PSI)		---			
							Natural Gas	Connection (inches)		---			
								Capacity (BTU)		---			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		---			
								Volume (CFM)		---			
								Capacity (PSI)		---			

Equipment Description:	**EQ ID Number:**
Press, hydraulic, 20 ton	**2102**

2102 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Press, hydraulic, 20 ton	**2102**

Manufacturer: Nugierfroom Corporation **Model No.:** H20-6-3F



2105 Equipment Datasheet

Manufacturer:	**Dake Machine Tools**							**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**6-225**							**Equipment**	**42-1/2**		**30**		**81**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** 12 **Right** 12		**Front** 48 **Back** 12		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight: 750 pounds; Capacity: 25 tons.							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---							**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---							**Connection Size**	Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
								Connection Type	**---**					
Plumbing	---							**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Drain (Y/N)		**N**			
								Compressed Air	Connection (inches)		**1/4 (NPT)**			
									Volume (CFM)		**24**			
									Capacity (PSI)		**90 to 125**			

Equipment Description:

Press, air/hydraulic, 25 ton

EQ ID Number:

2105

2105 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Press, air/hydraulic, 25 ton	**2105**

Manufacturer: Dake Machine Tools **Model No.:** 6-225



2165 Equipment Datasheet

Manufacturer:	**Norco Industries**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**71500G**							**Equipment**	**62-1/4**		**16-3/4**		**47-7/8**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---							**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---							**Connection Size**	Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
								Connection Type	**---**					
Plumbing	---							**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Drain (Y/N)		**N**			
								Compressed Air	Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Jack, floor, five ton

EQ ID Number:

2165

2165 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Jack, floor, five ton	**2165**

Manufacturer: Norco Industries **Model No.:** 71500G



2353 Equipment Datasheet

Manufacturer:	**Hennessy Industries, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**HIT-6000**						**Equipment**	**78**		**48**		**36**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 60 **Back** 24		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**208**	**---**	**---**		
								Phase	**3**	**---**	**---**		
								Horsepower (HP)	**3**	**---**	**---**		
								Amps	**25**	**---**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**1/4**			
								Volume (CFM)		**5**			
								Capacity (PSI)		**110 to 175**			

Equipment Description:

Changer, heavy duty, 44 inch max tire

EQ ID Number:

2353

2353 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Changer, heavy duty, 44 inch max tire	**2353**

Manufacturer: Hennessy Industries, Inc. **Model No.:** HIT-6000



2363 Equipment Datasheet

Manufacturer:	**Hennessy Industries**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**6450-2D**							**Equipment**	**93**		**62**		**84**	
								Hydraulic Tire Lift	**48**		**34**		**42**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**24**	**Front**	**60**	**Above**	**24**
								Right	**24**	**Back**	**12**	**Below**	**---**

DISCIPLINE COORDINATION:							
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Unit will be anchored to the slab. Approximate weight: 1,500 pounds; Capacity: 500 pounds	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	Special purpose outlet = L620 plug for single phase or L1520 plug for three phase	**Connection Size**	Requirements	**Unit**	**---**	**---**	
			Voltage	**220**	**---**	**---**	
			Phase	**1**	**---**	**---**	
			Horsepower (HP)	**1-1/2**	**---**	**---**	
			Amps	**20**	**---**	**---**	
		Connection Type	**Provide special purpose outlet**				
Plumbing	Compressed air connection only required when optional accessory of hydraulic lift (Hennessy Model No. 575) is used.	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**1/4 NPT**			
			Volume (CFM)	**3**			
			Capacity (PSI)	**120 to 150**			

Equipment Description:

Balancer, tire, heavy duty

EQ ID Number:

2363

2363 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Balancer, tire, heavy duty	**2363**

Manufacturer: Hennessy Industries **Model No.:** 6450-2D



2365 Equipment Datasheet

Manufacturer:	**Branick Industries, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**2250**						**Equipment**	**28**		**36**		**60**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 60 **Back** 12		**Above** 36 **Below** 0	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Unit weight 200 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	Automatic Inflation Kit	**---**	**---**		
								Voltage	**120**	**---**	**---**		
								Phase	**1**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**20**	**---**	**---**		
							Connection Type	**Provide standard grounded receptacle**					
Plumbing	Provide 3/4 inch combination filter-regulator.						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**1/4**			
								Volume (CFM)		**6**			
								Capacity (PSI)		**120**			

Equipment Description:

Cage, inflation, tire

EQ ID Number:

2365

2365 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cage, inflation, tire	**2365**

Manufacturer: Branick Industries, Inc. **Model No.:** 2250





2368 Equipment Datasheet

Manufacturer:	**Branick Industries**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**S-FLL**						**Equipment**	**25**		**35**		**17**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 12 **Right** 12		**Front** 60 **Back** 12		**Above** 60 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**3/8**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**80-120**			

Equipment Description:

Spreader, tire

EQ ID Number:

2368

2368 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Spreader, tire	**2368**

Manufacturer: Branick Industries **Model No.:** S-FLL



2370 Equipment Datasheet

Manufacturer:	**Norco Industries**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)			
Model No.:	**82320**							**Equipment**	**39-1/2**		**43-1/2**		**35**			
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---			
DISCIPLINE COORDINATION:																
Architectural	---							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**					
Structural	Capacity: 1,500 pounds Weight: 175 pounds							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**					
Mechanical	---							**Venting**	Connection (inches)		**---**					
									Volume (CFM)		**---**					
Electrical	---							**Connection Size**	Requirements	**---**	**---**	**---**				
									Voltage	**---**	**---**	**---**				
									Phase	**---**	**---**	**---**				
									Horsepower (HP)	**---**	**---**	**---**				
									Amps	**---**	**---**	**---**				
								Connection Type	**---**							
Plumbing	---							**Domestic Water**	Connection (inches)		**---**					
									Flow Rate (GPM)		**---**					
									Capacity (PSI)		**---**					
								Natural Gas	Connection (inches)		**---**					
									Capacity (BTU)		**---**					
								Drain	Floor Drain (Y/N)		**N**					
								Compressed Air	Connection (inches)		**---**					
									Volume (CFM)		**---**					
									Capacity (PSI)		**---**					

Equipment Description:

Dolly, wheel

EQ ID Number:

2370

2370 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Dolly, wheel	**2370**

Manufacturer: Norco Industries **Model No.:** 82320



2372 Equipment Datasheet

Manufacturer:		**Rotary**					**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**MW-500**					**Equipment**	**47-1/2**		**42**		**72**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural		---					**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural		---					**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical		---					**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical		---					**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing		---					**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**3/8**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**100**			

Equipment Description:

Dolly, wheel, high lift

EQ ID Number:

2372

2372 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Dolly, wheel, high lift	**2372**

Manufacturer: Rotary **Model No.:** MW-500



2440 Equipment Datasheet

Manufacturer:	**Tennant**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**5700-700D with Fast**						**Unit**	**37-1/2**		**64**		**43**	
							Wall Mounted Charger	**12**		**12**		**5**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	

DISCIPLINE COORDINATION:					
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Mechanical	---	**Venting**	Connection (inches)	**---**	
			Volume (CFM)	**---**	
Electrical	Wall mounted battery charger	**Connection Size**	Requirements	**Unit**	**---** / **---**
			Voltage	**120**	**---** / **---**
			Phase	**1**	**---** / **---**
			Horsepower (HP)	**0.6**	**---** / **---**
			Amps	**16**	**---** / **---**
		Connection Type	**Provide dedicated outlet**		
Plumbing	---	**Domestic Water**	Connection (inches)	**---**	
			Flow Rate (GPM)	**---**	
			Capacity (PSI)	**---**	
		Natural Gas	Connection (inches)	**---**	
			Capacity (BTU)	**---**	
		Drain	Floor Drain or Floor Sink (Y/N)	**N**	
		Compressed Air	Connection (inches)	**---**	
			Volume (CFM)	**---**	
			Capacity (PSI)	**---**	

Equipment Description:

Scrubber, floor, walk behind, 28 inch path, battery operated

EQ ID Number:

2440

2440 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Scrubber, floor, walk behind, 28 inch path, battery operated	**2440**

Manufacturer: Tennant **Model No.:** 5700-700D with Fast



2610 Equipment Datasheet

Manufacturer:	**Clausing Industrial**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**2277 with accessories**						**Equipment**	**22**		**36**		**69**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 24 **Right** 24		**Front** 48 **Back** 6		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight: 650 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**460**	**---**	**---**		
								Phase	**3**	**---**	**---**		
								Horsepower (HP)	**1.5**	**---**	**---**		
								Amps	**3**	**---**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Drill press, variable speed, 20 inch

EQ ID Number:

2610

2610 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Drill press, variable speed, 20 inch	**2610**

Manufacturer: Clausing Industrial **Model No.:** 2277 with accessories



2644 Equipment Datasheet

Manufacturer:	**Robinair**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Cool-Tech 34988 NI with accessories**						**Equipment**	**36**		**24**		**50**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	

DISCIPLINE COORDINATION:					
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Mechanical	---	**Venting**	Connection (inches)	---	
			Volume (CFM)	---	
Electrical	---	**Connection Size**	Requirements	**Unit**	--- / ---
			Voltage	**120**	--- / ---
			Phase	**1**	--- / ---
			Horsepower (HP)	---	--- / ---
			Amps	**12**	--- / ---
		Connection Type	**Provide standard grounded receptacle**		
Plumbing	---	**Domestic Water**	Connection (inches)	---	
			Flow Rate (GPM)	---	
			Capacity (PSI)	---	
		Natural Gas	Connection (inches)	---	
			Capacity (BTU)	---	
		Drain	Floor Sink (Y/N)	**N**	
		Compressed Air	Connection (inches)	---	
			Volume (CFM)	---	
			Capacity (PSI)	---	

Equipment Description:

Recovery unit, refrigerant, rolling

EQ ID Number:

2644

2644 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Recovery unit, refrigerant, rolling	**2644**

Manufacturer:	Robinair	Model No.:	Cool-Tech 34988 NI with accessories



2672 Equipment Datasheet

Manufacturer:	**Jet**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**SR-1650M with Stand SRS-50N**						**Equipment**		**68**		**22**		**50**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 24 **Right** 24		**Front** 48 **Back** 48		**Above** 36 **Below** ---		
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Structural	Unit shall be anchored to floor; Approximate weight: 635 pounds.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Mechanical	---						**Venting**	Connection (inches)		**---**				
								Volume (CFM)		**---**				
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**			
								Voltage	**---**	**---**	**---**			
								Phase	**---**	**---**	**---**			
								Horsepower (HP)	**---**	**---**	**---**			
								Amps	**---**	**---**	**---**			
							Connection Type	**---**						
Plumbing	---						**Domestic Water**	Connection (inches)		**---**				
								Flow Rate (GPM)		**---**				
								Capacity (PSI)		**---**				
							Natural Gas	Connection (inches)		**---**				
								Capacity (BTU)		**---**				
							Drain	Floor Drain (Y/N)		**N**				
							Compressed Air	Connection (inches)		**---**				
								Volume (CFM)		**---**				
								Capacity (PSI)		**---**				

Equipment Description:

Roller, bender, plate, hand operated

EQ ID Number:

2672

2672 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Roller, bender, plate, hand operated	**2672**

Manufacturer: Jet **Model No.:** SR-1650M with Stand SRS-50N



2678 Equipment Datasheet

Manufacturer:	**Powermatic**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Model 31A - Stock No. 1791292K (3 Phase Model)**						**Equipment**		**24**		**31-1/4**		**54-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 36 **Back** 12		**Above** 12 **Below** ---		

DISCIPLINE COORDINATION:						
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	Connect to dust collection system.	**Venting**	Connection (inches)	**4**		
			Volume (CFM)	**400**		
Electrical	---	**Connection Size**	Requirements	**Unit**	---	---
			Voltage	**460**	---	---
			Phase	**3**	---	---
			Horsepower (HP)	**2**	---	---
			Amps	**3.5**	---	---
		Connection Type	**Provide disconnect**			
Plumbing	---	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Drain (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Sander, belt/disc

EQ ID Number:

2678

2678 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Sander, belt/disc	**2678**

Manufacturer:	Powermatic	Model No.:	Model 31A - Stock No. 1791292K (3 Phase Model)



2689 Equipment Datasheet

Manufacturer:	**Kalamazoo Machine Tool**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**H350M with accessories**						**Equipment**		**72**		**60**		**37**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** 48 **Right** 36		**Front** 48 **Back** 120		**Above** 12 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**Unit**	**---**	**---**		
									Voltage	**460**	**---**	**---**		
									Phase	**3**	**---**	**---**		
									Horsepower (HP)	**3**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**Provide disconnect**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Saw, band, horizontal, large

EQ ID Number:

2689

2689 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Saw, band, horizontal, large	**2689**

Manufacturer: Kalamazoo Machine Tool **Model No.:** H350M with accessories



2690 Equipment Datasheet

Manufacturer:	**Wellsaw**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1016 with accessories**							**Equipment**	**40**		**84**		**49**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 48 **Right** 48		**Front** 36 **Back** 12		**Above** 36 **Below** ---		
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Structural	Weight: 900 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Mechanical	---						**Venting**	Connection (inches)	---					
								Volume (CFM)	---					
Electrical	---						**Connection Size**	Requirements	**Unit**	---	---			
								Voltage	**460**	---	---			
								Phase	**3**	---	---			
								Horsepower (HP)	**2**	---	---			
								Amps	**3.2**	---	---			
							Connection Type	**Provide disconnect**						
Plumbing	---						**Domestic Water**	Connection (inches)	---					
								Flow Rate (GPM)	---					
								Capacity (PSI)	---					
							Natural Gas	Connection (inches)	---					
								Capacity (BTU)	---					
							Drain	Floor Drain (Y/N)	**N**					
							Compressed Air	Connection (inches)	---					
								Volume (CFM)	---					
								Capacity (PSI)	---					

Equipment Description:

Saw, band, horizontal, small

EQ ID Number:

2690

2690 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Saw, band, horizontal, small	**2690**

Manufacturer: Wellsaw **Model No.:** 1016 with accessories



2692 Equipment Datasheet

Manufacturer:	**Powermatic**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**PWBS-14CS**						**Equipment**		**20**		**34**		**68**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 48 **Right** 48		**Front** 36 **Back** ---		**Above** 48 **Below** ---		
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Structural	Weight: 266 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Mechanical	Connect equipment to dust collection system.						**Venting**	Connection (inches)		**4**				
								Volume (CFM)		**350**				
Electrical	---						**Connection Size**	Requirements	**Motor**	---	---			
								Voltage	**115**	---	---			
								Phase	**1**	---	---			
								Horsepower (HP)	**1-1/2**	---	---			
								Amps	**11**	---	---			
							Connection Type	**Provide standard grounded receptacle**						
Plumbing	---						**Domestic Water**	Connection (inches)		---				
								Flow Rate (GPM)		---				
								Capacity (PSI)		---				
							Natural Gas	Connection (inches)		---				
								Capacity (BTU)		---				
							Drain	Floor Sink (Y/N)		**N**				
							Compressed Air	Connection (inches)		---				
								Volume (CFM)		---				
								Capacity (PSI)		---				

Equipment Description:

Saw, band, vertical, 14 inch

EQ ID Number:

2692

2692 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Saw, band, vertical, 14 inch	**2692**

Manufacturer: Powermatic **Model No.:** PWBS-14CS



2698 Equipment Datasheet

Manufacturer:	**Makita**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**LW1401**						**Equipment**	**11**		**19-3/4**		**23-5/8**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**36**	**Front**	**36**	**Above**	**24**
								Right	**36**	**Back**	**12**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Mechanical	---	**Venting**	Connection (inches)	**---**	
			Volume (CFM)	**---**	
Electrical	---	**Connection Size**	Requirements	**Unit**	**---** / **---**
			Voltage	**120**	**---** / **---**
			Phase	**1**	**---** / **---**
			Horsepower (HP)	**---**	**---** / **---**
			Amps	**15**	**---** / **---**
		Connection Type	**Provide standard grounded receptacle**		
Plumbing	---	**Domestic Water**	Connection (inches)	**---**	
			Flow Rate (GPM)	**---**	
			Capacity (PSI)	**---**	
		Natural Gas	Connection (inches)	**---**	
			Capacity (BTU)	**---**	
		Drain	Floor Drain (Y/N)	**N**	
		Compressed Air	Connection (inches)	**---**	
			Volume (CFM)	**---**	
			Capacity (PSI)	**---**	

Equipment Description:

Saw, cutoff, abrasive, 14 inch

EQ ID Number:

2698

2698 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Saw, cutoff, abrasive, 14 inch	**2698**

Manufacturer: Makita **Model No.:** LW1401



2740 Equipment Datasheet

Manufacturer:	**Miller Electric**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Millermatic 141 Package (951601)**						**Equipment**	**18**		**36**		**35**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**120**	**---**	**---**		
								Phase	**1**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**20**	**---**	**---**		
							Connection Type	**Provide standard grounded receptacle**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Welder, MIG, with cart

EQ ID Number:

2740

2740 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Welder, MIG, with cart	**2740**

Manufacturer: Miller Electric **Model No.:** Millermatic 141 Package (951601)



2742 Equipment Datasheet

Manufacturer:	**Miller Electric Manufacturing Company**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Millermatic 252 with accessories no.:907321**						**Equipment**	**19**		**40**		**30**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	

DISCIPLINE COORDINATION:							
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Weight: 207 pounds	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	NEMA configuration: Receptacle: 6-50R Plug: 6-50P	**Connection Size**	Requirements	**Unit**	**---**	**---**	
			Voltage	**460**	**---**	**---**	
			Phase	**1**	**---**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**23**	**---**	**---**	
		Connection Type	**Special purpose outlet**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:	**EQ ID Number:**
Welder, MIG, portable	**2742**

2742 Equipment Cutsheet

Equipment Description:		EQ ID Number:
Welder, MIG, portable		**2742**
Manufacturer:	**Miller Electric Manufacturing Company**	**Model No.:** **Millermatic 252 with accessories no.:907321**



2750 Equipment Datasheet

Manufacturer:	**Miller Electric Manufacturing Company**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Dimension 452 (Part No.: 903254)**						**Equipment**		**38**		**23**		**30**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**Unit**	**---**		**---**	
									Voltage	**208**	**---**		**---**	
									Phase	**3**	**---**		**---**	
									Horsepower (HP)	**---**	**---**		**---**	
									Amps	**60**	**---**		**---**	
							Connection Type		Provide pecial purpose outlet					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Welder, multiprocess

EQ ID Number:

2750

2750 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Welder, multiprocess	**2750**

Manufacturer: Miller Electric Manufacturing Company

Model No.: Dimension 452 (Part No.: 903254)



2760 Equipment Datasheet

Manufacturer:	**Miller Electric Manufacturing Co.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Syncrowave 210 Runner No. 951684 with accessories**						**Equipment**	**18-1/2**		**43**		**31-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight: 139 1/2 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**Unit**	---		
								Voltage	**120**	**240**	---		
								Phase	**1**	**1**	---		
								Horsepower (HP)	**---**	**---**	---		
								Amps	**20.5**	**11.9**	---		
							Connection Type	**Provide special purpose outlet**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Welder, TIG

EQ ID Number:

2760

2760 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Welder, TIG	**2760**

Manufacturer:	Miller Electric Manufacturing Co.	Model No.:	Syncrowave 210 Runner No. 951684 with accessories



2765 Equipment Datasheet

Manufacturer:	**Harris Product Group**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**4403235**						**Equipment**		**28**		**16-1/2**		**43-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Torch, oxyacetylene, with cart

EQ ID Number:

2765

2765 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Torch, oxyacetylene, with cart	**2765**

Manufacturer: Harris Product Group **Model No.:** 4403235



2770 Equipment Datasheet

Manufacturer:	**Singer Safety Company**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**13-011066**						**Equipment**	**144**		**18**		**77-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Screen, welding

EQ ID Number:

2770

2770 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Screen, welding	**2770**

Manufacturer: Singer Safety Company **Model No.:** 13-011066



2780 Equipment Datasheet

Manufacturer:	**Miller Electric Company**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)		
Model No.:	**907579**							**Equipment**	**18**		**36**		**35**		
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	--- / ---		**Front** / **Back**	--- / ---	**Above** / **Below**	--- / ---	
DISCIPLINE COORDINATION:															
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Structural	Unit weight: 56 pounds						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Mechanical	---						**Venting**		Connection (inches)		**---**				
									Volume (CFM)		**---**				
Electrical	Match plug; NEMA: L6-30R twist lock						**Connection Size**		Requirements	**Motor**	**---**	**---**			
									Voltage	**240**	**---**	**---**			
									Phase	**1**	**---**	**---**			
									Horsepower (HP)	**---**	**---**	**---**			
									Amps	**27.7**	**---**	**---**			
							Connection Type		**Provide special purpose outlet**						
Plumbing	---						**Domestic Water**		Connection (inches)		**---**				
									Flow Rate (GPM)		**---**				
									Capacity (PSI)		**---**				
							Natural Gas		Connection (inches)		**---**				
									Capacity (BTU)		**---**				
							Drain		Floor Sink (Y/N)		**N**				
							Compressed Air		Connection (inches)		**3/8**				
									Volume (CFM)		**6**				
									Capacity (PSI)		**90-120**				

Equipment Description:

Cutter, plasma

EQ ID Number:

2780

2780 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cutter, plasma	**2780**

Manufacturer: Miller Electric Company **Model No.:** 907579



2835 Equipment Datasheet

Manufacturer:	**WMH Tool Group/Wilton**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1755**						**Equipment**	**9**		**18**		**10**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**36**	**Front**	**36**	**Above**	**24**
								Right	**36**	**Back**	**12**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**---**	**---**	**---**	
			Voltage	**---**	**---**	**---**	
			Phase	**---**	**---**	**---**	
			Horsepower (HP)	**---**	**---**	**---**	
			Amps	**---**	**---**	**---**	
		Connection Type	**---**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Vise, five inch

EQ ID Number:

2835

2835 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Vise, five inch	**2835**

Manufacturer: WMH Tool Group/Wilton **Model No.:** 1755



2838 Equipment Datasheet

Manufacturer:	**Wilton Tool Group**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**1780A (stock No. 63202)**						**Equipment**		**20-1/2**		**10-3/4**		**13-1/4**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** 36 **Right** 36		**Front** 36 **Back** 12		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Vise, eight inch

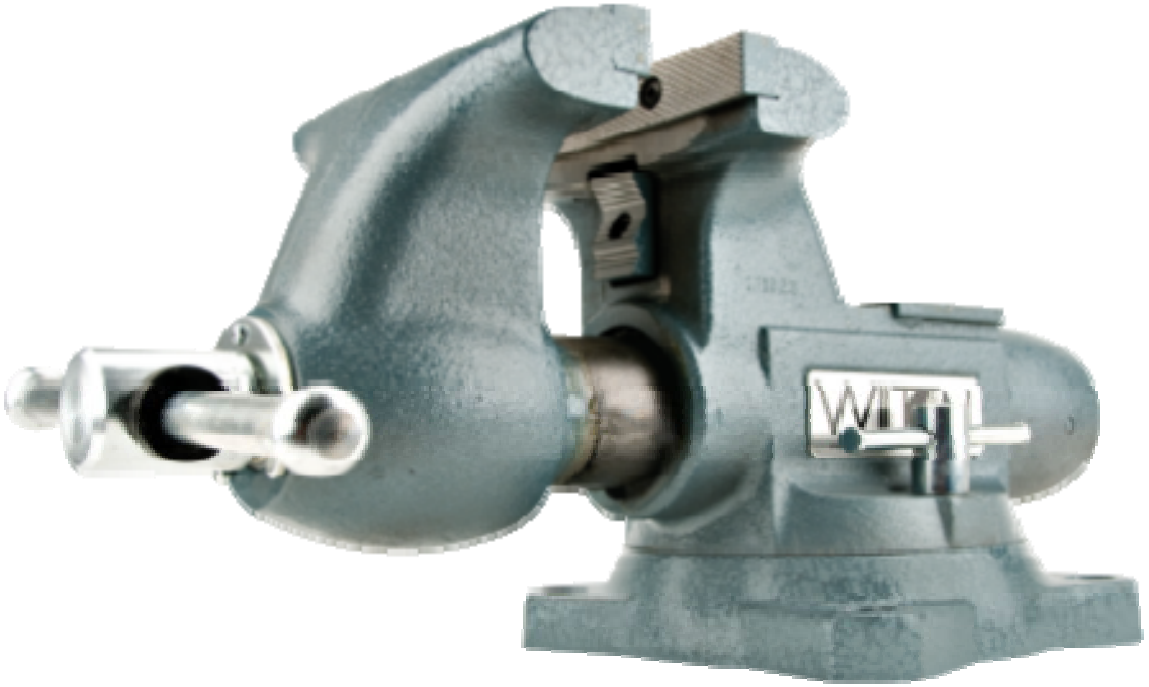
EQ ID Number:

2838

2838 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Vise, eight inch	**2838**

Manufacturer: Wilton Tool Group **Model No.:** 1780A (stock No. 63202)



2880 Equipment Datasheet

Manufacturer:	**Baldor Electronics**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**8123 WD**						**Equipment**	**24-3/4**		**41**		**41-3/4**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 24 **Right** 24		**Front** 36 **Back** 12		**Above** 36 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight grinder: 112 pounds; Dust collector: 325 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Grinder/ Fan**	**Dust Control**	**---**		
								Voltage	**460**	**120**	**---**		
								Phase	**3**	**1**	**---**		
								Horsepower (HP)	**3/4**	**1**	**---**		
								Amps	**1.5**	**12**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Buffer/grinder, eight inch, with dust collector

EQ ID Number:

2880

2880 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Buffer/grinder, eight inch, with dust collector	**2880**

Manufacturer: Baldor Electronics **Model No.:** 8123 WD



2885 Equipment Datasheet

Manufacturer:	**ABB Motors and Mechanical Inc. - Baldor**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**8250W with accessories**							**Equipment**	**24**		**13**		**47**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** 24 **Right** 24		**Front** 36 **Back** 12		**Above** 24 **Below** ---	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**
Structural	Grinder: 97 pounds; Pedestal: 62 pounds; Eye Shield: 6 pounds; Dust Collector: 62 pounds.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**
Mechanical	---	**Venting**	Connection (inches)	---
			Volume (CFM)	---

Electrical	Provide a separate receptacle for buffer/grinder, each eye shield, and the dust collector.	**Connection Size**	Requirements	**Unit**	**Eye Shield**	**Eye Shield**	**Dust Collecto**
			Voltage	**120**	**120**	**120**	**120**
			Phase	**1**	**1**	**1**	**1**
			Horsepower (HP)	**3/4**	**---**	**---**	**0.5**
			Amps	**4.8**	**0.52**	**0.52**	**1**
		Connection Type		**Provide standard grounded receptacle**			

Plumbing	---	**Domestic Water**	Connection (inches) ---
			Flow Rate (GPM) ---
			Capacity (PSI) ---
		Natural Gas	Connection (inches) ---
			Capacity (BTU) ---
		Drain	Floor Drain or Floor Sink (Y/N) **N**
		Compressed Air	Connection (inches) ---
			Volume (CFM) ---
			Capacity (PSI) ---

Equipment Description:

Buffer/grinder, eight inch, with pedestal

EQ ID Number:

2885

2885 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Buffer/grinder, eight inch, with pedestal	**2885**

Manufacturer: ABB Motors and Mechanical Inc. - Baldor **Model No.:** 8250W with accessories



3085 Equipment Datasheet

Manufacturer:	**Trinity Tool Company (TRINCO)**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Master 36/BP**						**Equipment**	**38**		**25**		**64**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**24**	**Front**	**48**	**Above**	**---**
								Right	**48**	**Back**	**---**	**Below**	**---**

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	---	**Venting**	Connection (inches)	**---**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**Unit**	**---**	**---**	
			Voltage	**120**	**---**	**---**	
			Phase	**1**	**---**	**---**	
			Horsepower (HP)	**1-1/3**	**---**	**---**	
			Amps	**9**	**---**	**---**	
		Connection Type	**Provide standard grounded receptacle**				
Plumbing	---	**Domestic Water**	Connection (inches)	**---**			
			Flow Rate (GPM)	**---**			
			Capacity (PSI)	**---**			
		Natural Gas	Connection (inches)	**---**			
			Capacity (BTU)	**---**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**3/8**			
			Volume (CFM)	**25**			
			Capacity (PSI)	**60-80**			

Equipment Description:

Cabinet, abrasive blast, with dust collector

EQ ID Number:

3085

3085 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cabinet, abrasive blast, with dust collector	**3085**

Manufacturer: Trinity Tool Company (TRINCO) **Model No.:** Master 36/BP



3275 Equipment Datasheet

Manufacturer:		**Airflow Systems, Inc.**					**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)		
Model No.:		**PCH-2**						**Equipment**	**24**		**49-1/4**		**31-1/4**		
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** --- **Right** 42		**Front** 2 **Back** 2		**Above** 72 **Below** ---		
DISCIPLINE COORDINATION:															
Architectural		---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural		---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical		---						**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical		---						**Connection Size**	Requirements	**Unit**	**---**		**---**	
									Voltage	**460**	**---**		**---**	
									Phase	**3**	**---**		**---**	
									Horsepower (HP)	**3**	**---**		**---**	
									Amps	**8.4**	**---**		**---**	
								Connection Type	**Provide standard grounded receptacle**					
Plumbing		---						**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Drain (Y/N)		**N**			
								Compressed Air	Connection (inches)		**3/8**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**100**			

Equipment Description:

Extractor, fume, welding, portable, 1,200 CFM

EQ ID Number:

3275

3275 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Extractor, fume, welding, portable, 1,200 CFM	**3275**

Manufacturer: Airflow Systems, Inc. **Model No.:** PCH-2



3288 Equipment Datasheet

Manufacturer:	**Nederman, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**70505244 with accessories**						**Equipment**	**15-1/4**		**11-1/4**		**60**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 36 **Back** 6		**Above** 60 **Below** ---	

DISCIPLINE COORDINATION:					
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Mechanical	---	**Venting**	Connection (inches)	---	
			Volume (CFM)	---	
Electrical	---	**Connection Size**	Requirements	**Unit**	--- / ---
			Voltage	**115**	--- / ---
			Phase	**1**	--- / ---
			Horsepower (HP)	**0.2**	--- / ---
			Amps	---	--- / ---
		Connection Type	**Provide standard grounded receptacle**		
Plumbing	---	**Domestic Water**	Connection (inches)	---	
			Flow Rate (GPM)	---	
			Capacity (PSI)	---	
		Natural Gas	Connection (inches)	---	
			Capacity (BTU)	---	
		Drain	Floor Drain or Floor Sink (Y/N)	**N**	
		Compressed Air	Connection (inches)	---	
			Volume (CFM)	---	
			Capacity (PSI)	---	

Equipment Description:

Fume extraction arm, bench mounted

EQ ID Number:

3288

3288 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Fume extraction arm, bench mounted	**3288**

Manufacturer: Nederman, Inc. **Model No.:** 70505244 with accessories



3290 Equipment Datasheet

Manufacturer:	**Airflow systems Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**EZ Arm 7E14**						**Equipment**	**---**		**---**		**---**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** 12 **Below** 126	

DISCIPLINE COORDINATION:							
Architectural	Coordinate roof/wall penetration for exhaust vent piping and wall mounting of unit.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Structural	Provide roof/wall penetration of exhaust vent with mechanical; Arm shall be mounted at 10 feet, 6 inches AFF; Approximate weight 45 pounds; Coordinate size and location with mechanical; Reference Manufacturer's Design Details.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**			
Mechanical	Provide 8 inch exhaust vent piping from exhaust fan to exterior; Coordinate with design details.	**Venting**	Connection (inches)	**8**			
			Volume (CFM)	**600 to 1,500**			
Electrical	One connection from starter to blower.	**Connection Size**	Requirements	**Unit**	---	---	
			Voltage	**460**	---	---	
			Phase	**3**	---	---	
			Horsepower (HP)	**3**	---	---	
			Amps	**3.8**	---	---	
		Connection Type	**Provide disconnect**				
Plumbing	---	**Domestic Water**	Connection (inches)	---			
			Flow Rate (GPM)	---			
			Capacity (PSI)	---			
		Natural Gas	Connection (inches)	---			
			Capacity (BTU)	---			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	---			
			Volume (CFM)	---			
			Capacity (PSI)	---			

Equipment Description:

Fume extraction arm, welding

EQ ID Number:

3290

3290 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Fume extraction arm, welding	**3290**

Manufacturer: Airflow systems Inc. **Model No.:** EZ Arm 7E14



E-Z Arm

Features & Benefits

- **Patented friction release pawl-and-sprocket design:** Engages positively when positioned, yet offers no resistance when removed.
- **7-, 10-, or 14-foot lengths:** Provides for high-volume collection with maximum reach.
- **Strong HDPE flat base joint:** Easy to install; HDPE bearing material works to seal base without collars or fittings.
- **Large 13-in. dia. inlet hood with 360° flange handle:** Easier hood positioning than single-handle designs.
- **Durable rounded duct constructed of 21-ga. aluminum:** Withstands industrial use, yet lightweight for easy operation. Powder coated inside and outside.
- **Hi-Flow spiral wire-reinforced hose.** Provides superior strength and resistance to sparks and embers.

Options

- **65 Watt Halogen Light Kit:** Improves worker visibility and productivity.
- **Damper:** Shut off air flow when not in use.
- **Blowers:** Several sizes available.
- **Silencer:** Reduces air flow noise for quieter operation.
- **Wall Brackets:** Maximizes installation versatility.
- **Adjustable Height Floor Stand:** Maximum height of 120 inches adds installation versatility.
- **Filtration Units:** HEPA, cartridge, and odor-control filter systems available based on application.
- **Boom Extensions:** System includes steel boom arm, boom arm wall bracket, tube kit, flex hose, and one transition to 8-in. dia.

Specifications

- **Construction:** 21 ga. aluminum tube with spiral wire-reinforced Hi-Flow hose
- **Arm Lengths:** 7 ft. (E-Z Arm® 7E07) , 10 ft. (E-Z Arm® 7E10), 14 ft. (E-Z Arm® 7E14)
- **Blower Pkgs (HP):** .75, 1.5, 3.0, 5.0, 7.5
- **Nominal Air Flow (CFM):** 600 to 1500
- **Weight (lbs.):** E-Z Arm® 7E07 - 36 lbs., E-Z Arm® 7E10 - 40 lbs., E-Z Arm® 7E14 - 45 lbs.

3300 Equipment Datasheet

Manufacturer:	**Fabricated/Makai Solutions**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)			
Model No.:	**Stainless steel mop tank with accessories**						**Equipment**		**40**		**25**		**42**			
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**		**Left**	**36**	**Front**	**36**	**Above**	**36**		
									Right	**36**	**Back**	**36**	**Below**	**0**		
DISCIPLINE COORDINATION:																
Architectural	Coordinate floor sink locations per Design Details.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**Y**					
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**Y**					
Mechanical	---						**Venting**		Connection (inches)		**---**					
									Volume (CFM)		**---**					
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**				
									Voltage	**---**	**---**	**---**				
									Phase	**---**	**---**	**---**				
									Horsepower (HP)	**---**	**---**	**---**				
									Amps	**---**	**---**	**---**				
							Connection Type		**---**							
Plumbing	Provide faucet: Hot and cold water supply; Drain: 1-1/2 inches; Provide fabricated support for plumbing fixtures and hot and cold water supply; Reference Design Details.						**Domestic Water**		Connection (inches)		**3/4**					
									Flow Rate (GPM)		**3.5**					
									Capacity (PSI)		**---**					
							Natural Gas		Connection (inches)		**---**					
									Capacity (BTU)		**---**					
							Drain		Floor Sink (Y/N)		**Y**					
							Compressed Air		Connection (inches)		**---**					
									Volume (CFM)		**---**					
									Capacity (PSI)		**---**					

Equipment Description:	**EQ ID Number:**
Tank, mop, with wringer	**3300**

3300 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Tank, mop, with wringer	**3300**

Manufacturer:	Fabricated/Makai Solutions	Model No.:	Stainless steel mop tank with accessories



3540 Equipment Datasheet

Manufacturer:	**Graymills**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**PL36-A with accessories**						**Equipment**	**36**		**22**		**38-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 6 **Right** 6		**Front** 36 **Back** 6		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**120**	**---**	**---**		
								Phase	**1**	**---**	**---**		
								Horsepower (HP)	**1/5**	**---**	**---**		
								Amps	**1.04**	**---**	**---**		
							Connection Type	**Provide standard grounded receptacle**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Tank, parts cleaning, 15 gallon

EQ ID Number:

3540

3540 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Tank, parts cleaning, 15 gallon	**3540**

Manufacturer: Graymills **Model No.:** PL36-A with accessories



3555 Equipment Datasheet

Manufacturer:	**Better Engineering**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**F-3000-P with accessories**						**Equipment**	**50**		**62**		**69**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 36 **Right** 36		**Front** 48 **Back** 12		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Coordinate exterior penetration size and location of steam vent with mechanical.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate exterior penetration size and location of steam vent with mechanical.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	Steam exhaust: Vent PVC steam exhaust to exterior						**Venting**	Connection (inches)		**4**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**460**	**---**	**---**		
								Phase	**3**	**---**	**---**		
								Horsepower (HP)	**5**	**---**	**---**		
								Amps	**43**	**---**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	Provide back flow device.						**Domestic Water**	Connection (inches)		**1/2**			
								Flow Rate (GPM)		**10 to 12**			
								Capacity (PSI)		**50 to 150**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Washer, parts, automatic, front load

EQ ID Number:

3555

3555 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Washer, parts, automatic, front load	**3555**

Manufacturer: Better Engineering **Model No.:** F-3000-P with accessories



3610 Equipment Datasheet

Manufacturer:	**J.E. Adams Industries**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)		
Model No.:	**9235-3 with accessories**						**Equipment**		**20-1/8**		**26**		**52**		
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** 24 **Right** 24		**Front** 24 **Back** 6		**Above** --- **Below** ---		
DISCIPLINE COORDINATION:															
Architectural	Column mounted or on steel reinforced housekeeping pad at desired height of owner; Must be at least 20 feet from outside face of any fuel dispenser. [Project specific]						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**Y**				
Structural	Column mounted or on steel reinforced housekeeping pad a minimum of 18 inches. [Project specific]						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**Y**				
Mechanical	---						**Venting**		Connection (inches)		**---**				
									Volume (CFM)		**---**				
Electrical	Requires a dedicated circuit and hardwire connection.						**Connection Size**		Requirements	**Motor**	**---**	**---**			
									Voltage	**120**	**---**	**---**			
									Phase	**1**	**---**	**---**			
									Horsepower (HP)	**4.8**	**---**	**---**			
									Amps	**30**	**---**	**---**			
							Connection Type		**Provide j-box**						
Plumbing	---						**Domestic Water**		Connection (inches)		**---**				
									Flow Rate (GPM)		**---**				
									Capacity (PSI)		**---**				
							Natural Gas		Connection (inches)		**---**				
									Capacity (BTU)		**---**				
							Drain		Floor Drain (Y/N)		**N**				
							Compressed Air		Connection (inches)		**---**				
									Volume (CFM)		**---**				
									Capacity (PSI)		**---**				

Equipment Description:

Vacuum, canister, stainless steel

EQ ID Number:

3610

3610 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Vacuum, canister, stainless steel	**3610**

Manufacturer: J.E. Adams Industries **Model No.:** 9235-3 with accessories



3718 Equipment Datasheet

Manufacturer:	**Hotsy Corporation**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**945N with accessories**						**Equipment**	**47-1/2**		**21**		**51**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left**	**36**	**Front**	**36**	**Above**	**48**
								Right	**36**	**Back**	**36**	**Below**	**0**

DISCIPLINE COORDINATION:

Architectural	Coordinate roof penetration with equipment, mechanical, and structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**			
Structural	Coordinate roof penetration size and location of exhaust vent with mechanical and architectural; Weight of unit: 545 pounds.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**			
Mechanical	If enclosed, provide louvered opening sized according to combustion air requirements and NFPA54; Provide exhaust stack through the roof; Draft diverter supplied by manufacturer.	**Venting**	Connection (inches)	**8**			
			Volume (CFM)	**---**			
Electrical	---	**Connection Size**	Requirements	**Unit**	**---**	**---**	
			Voltage	**460**	**---**	**---**	
			Phase	**3**	**---**	**---**	
			Horsepower (HP)	**5**	**---**	**---**	
			Amps	**8**	**---**	**---**	
		Connection Type	**Provide disconnect**				
Plumbing	Water supply terminates at standard hose bibb; Provide gas regulator.	**Domestic Water**	Connection (I.D. inches)	**5/8**			
			Flow Rate (GPM)	**4**			
			Capacity (PSI)	**30**			
		Natural Gas	Connection (inches)	**3/4**			
			Capacity (BTU/Hr)	**365,000**			
			Gas Pressure (W.C.I)	**9 to 14**			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**---**			
			Volume (CFM)	**---**			
			Capacity (PSI)	**---**			

Equipment Description:

Washer, high pressure, hot water, 4 GPM

EQ ID Number:

3718

3718 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Washer, high pressure, hot water, 4 GPM	**3718**

Manufacturer: Hotsy Corporation **Model No.:** 945N with accessories



3834 Equipment Datasheet

Manufacturer:	**Interclean Equipment**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Four brush and touchless hybrid #LY16-042 with accessories**						**Equipment**	**1020**		**192**		**170**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	

DISCIPLINE COORDINATION:					
Architectural	Settling pit in wash bay; Floor slopes at 1/4 inch per foot; Coordinate with overhead door clearances; Vehicle wash pumps to be mounted on housekeeping pad.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**	
Structural	Provide cast in place settling pit per manufacturer's design details in wash bay with water stops to prevent water leaking out of sump; Vehicle wash pumps to be mounted on housekeeping pad.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**	
Mechanical	Coordinate 6 inch exhaust flue through roof from the water heater.	**Venting**	Connection (inches)	**6**	
			Volume (CFM)	**---**	
Electrical	---	**Connection Size**	Requirements	---	---
			Voltage	**---**	**---**
			Phase	**---**	**---**
			Horsepower (HP)	**---**	**---**
			Amps	**---**	**---**
		Connection Type		**---**	
Plumbing	---	**Domestic Water**	Connection (inches)	**2**	
			Flow Rate (GPM)	**---**	
			Capacity (PSI)	**30 to 80**	
		Natural Gas	Connection (inches)	**3/4**	
			Capacity (BTU)	**199000**	
		Drain	Floor Drain (Y/N)	**Y**	
		Compressed Air	Connection (inches)	**---**	
			Volume (CFM)	**---**	
			Capacity (PSI)	**---**	

Equipment Description:	**EQ ID Number:**
Washer, bus, drive through, four brush	**3834**

3834 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Washer, bus, drive through, four brush	**3834**

Manufacturer:	Interclean Equipment	Model No.:	Four brush and touchless hybrid #LY16-042 with accessories



5010 Equipment Datasheet

Manufacturer:	**Kone Cranes, Inc**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Model #**						**Equipment**	**0**		**0**		**0**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** 6 **Right** 6		**Front** 6 **Back** 6		**Above** 6 **Below** 6	

DISCIPLINE COORDINATION:						
Architectural	Coordinate OSHA clearances, overhead door clearances ducting clearances, process piping, routing with mechanical and design with structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Coordinate beam size clearances, and mounting details for crane rails per manufacturer's drawings.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	Coordinate ducting and HVAC equipment with architectural to avoid conflicts with the operation of the bridge crane.	**Venting**	Connection (inches)	**---**		
			Volume (CFM)	**---**		
Electrical	Provide power through disconnect to the support beam.	**Connection Size**	Requirements	**Unit**	**---**	**---**
			Voltage	**460**	**---**	**---**
			Phase	**3**	**---**	**---**
			Horsepower (HP)	**---**	**---**	**---**
			Amps	**35**	**---**	**---**
		Connection Type	**Provide disconnect**			
Plumbing	Coordinate piping with architect to avoid conflicts with the operation of the bridge crane.	**Domestic Water**	Connection (inches)	**---**		
			Flow Rate (GPM)	**---**		
			Capacity (PSI)	**---**		
		Natural Gas	Connection (inches)	**---**		
			Capacity (BTU)	**---**		
		Drain	Floor Sink (Y/N)	**N**		
		Compressed Air	Connection (inches)	**---**		
			Volume (CFM)	**---**		
			Capacity (PSI)	**---**		

Equipment Description:	**EQ ID Number:**
Crane, bridge, top running, 5 ton	**5010**

5010 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Crane, bridge, top running, 5 ton	**5010**

Manufacturer: Kone Cranes, Inc **Model No.:** Model #



5404 Equipment Datasheet

Manufacturer:	**Clark Material Handling Company**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**NPX 20 with accessories**							**Equipment**	**93**		**40-1/4**		**95**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 0 **Right** 0		**Front** 0 **Back** 0		**Above** 0 **Below** 0		

DISCIPLINE COORDINATION:						
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Weight of battery charger: 159 pounds.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	---	**Venting**	Connection (inches)	---		
			Volume (CFM)	---		
Electrical	Provide dedicated circuit.	**Connection Size**	Requirements	Battery Charger	---	---
			Voltage	**460**	---	---
			Phase	**3**	---	---
			Horsepower (HP)	---	---	---
			Amps	**13.5**	---	---
		Connection Type	**Provide disconnect**			
Plumbing	---	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Drain (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Forklift, electric, 4,000 pound, stand up

EQ ID Number:

5404

5404 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Forklift, electric, 4,000 pound, stand up	**5404**

Manufacturer: Clark Material Handling Company **Model No.:** NPX 20 with accessories



5410 Equipment Datasheet

Manufacturer:	**Clark Material Handling Company**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**GEX 50**						**Equipment**		**127-3/4**		**58-3/4**		**91**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Weight of battery charger is 380 pounds.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**Charger**	**---**	**---**		
									Voltage	**480**	**---**	**---**		
									Phase	**3**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**13-1/2**	**---**	**---**		
							Connection Type		**Provide Disconnect**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Forklift, electric, 10,000 pound

EQ ID Number:

5410

5410 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Forklift, electric, 10,000 pound	**5410**

Manufacturer: Clark Material Handling Company **Model No.:** GEX 50



5420 Equipment Datasheet

Manufacturer:	**Clark Material Handling Co.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**C50S**							**Equipment**	**175**		**69**		**90-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	--- / ---		**Front** / **Back**	36 / 36	**Above** / **Below**	--- / ---

DISCIPLINE COORDINATION:								
Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Mechanical	---	**Venting**	Connection (inches)	---				
			Volume (CFM)	---				
Electrical	---	**Connection Size**	Requirements	---	---	---		
			Voltage	---	---	---		
			Phase	---	---	---		
			Horsepower (HP)	---	---	---		
			Amps	---	---	---		
		Connection Type	---					
Plumbing	---	**Domestic Water**	Connection (inches)	---				
			Flow Rate (GPM)	---				
			Capacity (PSI)	---				
		Natural Gas	Connection (inches)	---				
			Capacity (BTU)	---				
		Drain	Floor Drain (Y/N)	**N**				
		Compressed Air	Connection (inches)	---				
			Volume (CFM)	---				
			Capacity (PSI)	---				

Equipment Description:

Forklift, 10,000 pound, LPG

EQ ID Number:

5420

5420 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Forklift, 10,000 pound, LPG	**5420**

Manufacturer: Clark Material Handling Co. **Model No.:** C50S



5442 Equipment Datasheet

Manufacturer:	**Pflow Industries, Inc.**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Series M VRC**						**Equipment**	**48**		**72**		**216**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** 24 **Right** ---		**Front** --- **Back** 48		**Above** 36 **Below** 5	
DISCIPLINE COORDINATION:													
Architectural	Coordinate platform level with lift.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate concrete slab and framing with lift manuafacturer's requirements; Provide five inch pit; Reference design details.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	All motors shall be designed for contious duty at ambient tempertaures from 32 to 102 degress F.						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**460**	**---**	**---**		
								Phase	**3**	**---**	**---**		
								Horsepower (HP)	**5**	**---**	**---**		
								Amps	**30**	**---**	**---**		
							Connection Type	**Provide disconnect**					
Plumbing	Provide floor drain in lift pit on lowest working level; Reference design details.						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**Y**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Lift, parts, straddle

EQ ID Number:

5442

5442 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Lift, parts, straddle	**5442**

Manufacturer: Pflow Industries, Inc. **Model No.:** Series M VRC



5558 Equipment Datasheet

Manufacturer:	**LPI Lift Systems**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**TK 48-S with accessories**							**Equipment**	**138**		**63**		**58**	
								Platform	**120**		**41**		**---**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left**	**4-1/2**	**Right**	**4-1/2**	**Front**	**4-1/2**	**Back**	**4-1/2**	**Above** **48** **Below** **0**

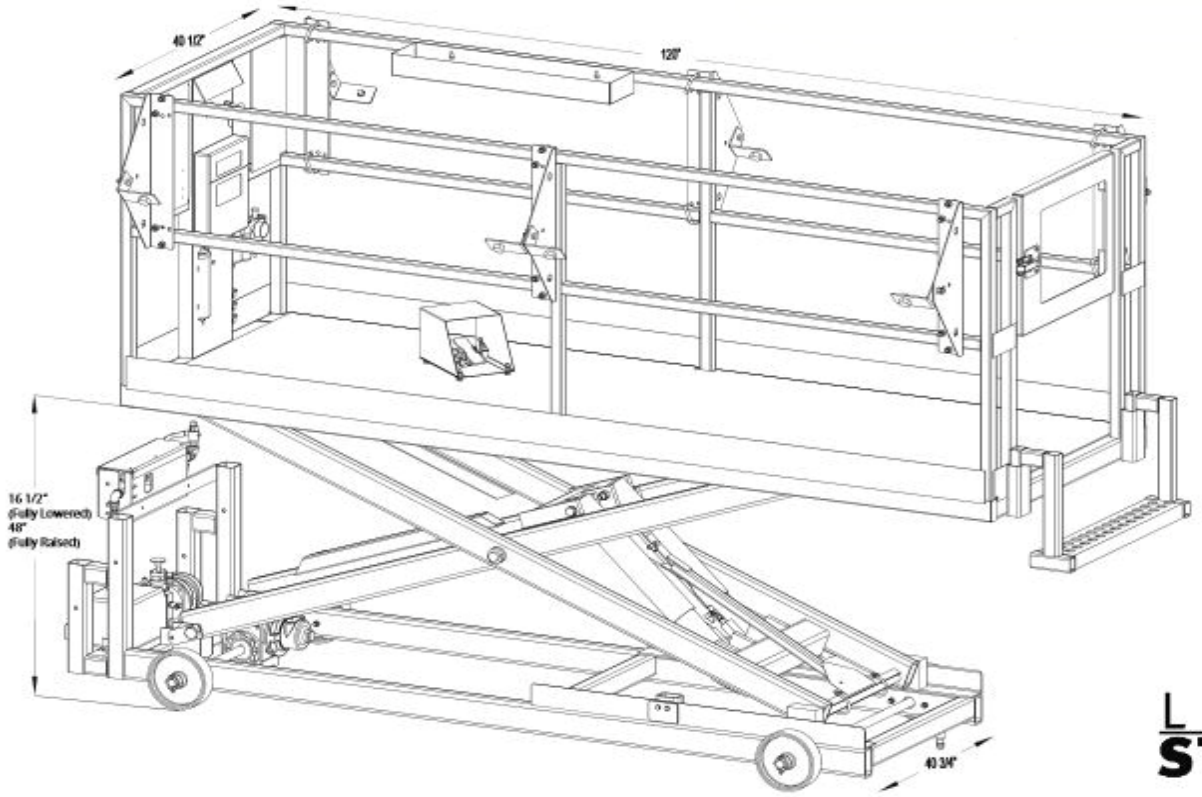
DISCIPLINE COORDINATION:						
Architectural	Minimum 6 feet clear width in lower level work area below pit opening. Coordinate/verify location of systems are not in equipment path of travel or within lifting clearances.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Coordinate with design details. Coordinate/verify location of systems are not in equipment path of travel or within lifting clearances.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	Coordinate/verify location of systems are not in equipment path of travel or within lifting clearances.	**Venting**	Connection (inches)	**---**		
			Volume (CFM)	**---**		
Electrical	Coordinate location of electric with equipment; Electrical connection wired into light- no plug (explosion proof).	**Connection Size**	Requirements	**Lighting**	**---**	**---**
			Voltage	**120**	**---**	**---**
			Phase	**1**	**---**	**---**
			Horsepower (HP)	**---**	**---**	**---**
			Amps	**4**	**---**	**---**
		Connection Type	**Provide j-box**			
Plumbing	Coordinate/verify location of systems are not in equipment path of travel or within lifting clearances.	**Domestic Water**	Connection (inches)	**---**		
			Flow Rate (GPM)	**---**		
			Capacity (PSI)	**---**		
		Natural Gas	Connection (inches)	**---**		
			Capacity (BTU)	**---**		
		Drain	Floor Drain (Y/N)	**N**		
		Compressed Air	Connection (inches)	**1/2**		
			Volume (CFM)	**50**		
			Capacity (PSI)	**90**		

Equipment Description:	**EQ ID Number:**
Lift, man, mobile, LLWA	**5558**

5558 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Lift, man, mobile, LLWA	**5558**

Manufacturer: LPI Lift Systems **Model No.:** TK 48-S with accessories



LPI STRONG®

5630 Equipment Datasheet

Manufacturer:	**Rotary Lifts**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**MOD335 with accessories**						**Equipment**	**25-3/8**		**14-1/4**		**32-7/8**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Coodinate foundation design with structural; Reference Design Details.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Provide note to reference approved manufacturer shop drawings prior to construction; Provide foundation details for lift per Design Details.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	Provide 2 inch conduits from control cabinet to lift; Reference approved manufacturer shop drawings; Provide two 2 inch conduits from disconnect to control panel.						**Connection Size**	Requirements	**Unit**	---	---		
								Voltage	**460**	---	---		
								Phase	**3**	---	---		
								Horsepower (HP)	**5**	---	---		
								Amps	**28**	---	---		
							Connection Type	**Provide disconnect**					
Plumbing	Provide drain for liquid evacuation system; Provide filter/regulator/lubricator to lift control panel; Reference Design Details.						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**1/2**			
								Volume (CFM)		**5**			
								Capacity (PSI)		**90 to 110**			

Equipment Description:

Lift, axle, three post, 105,000 pound, shallow design

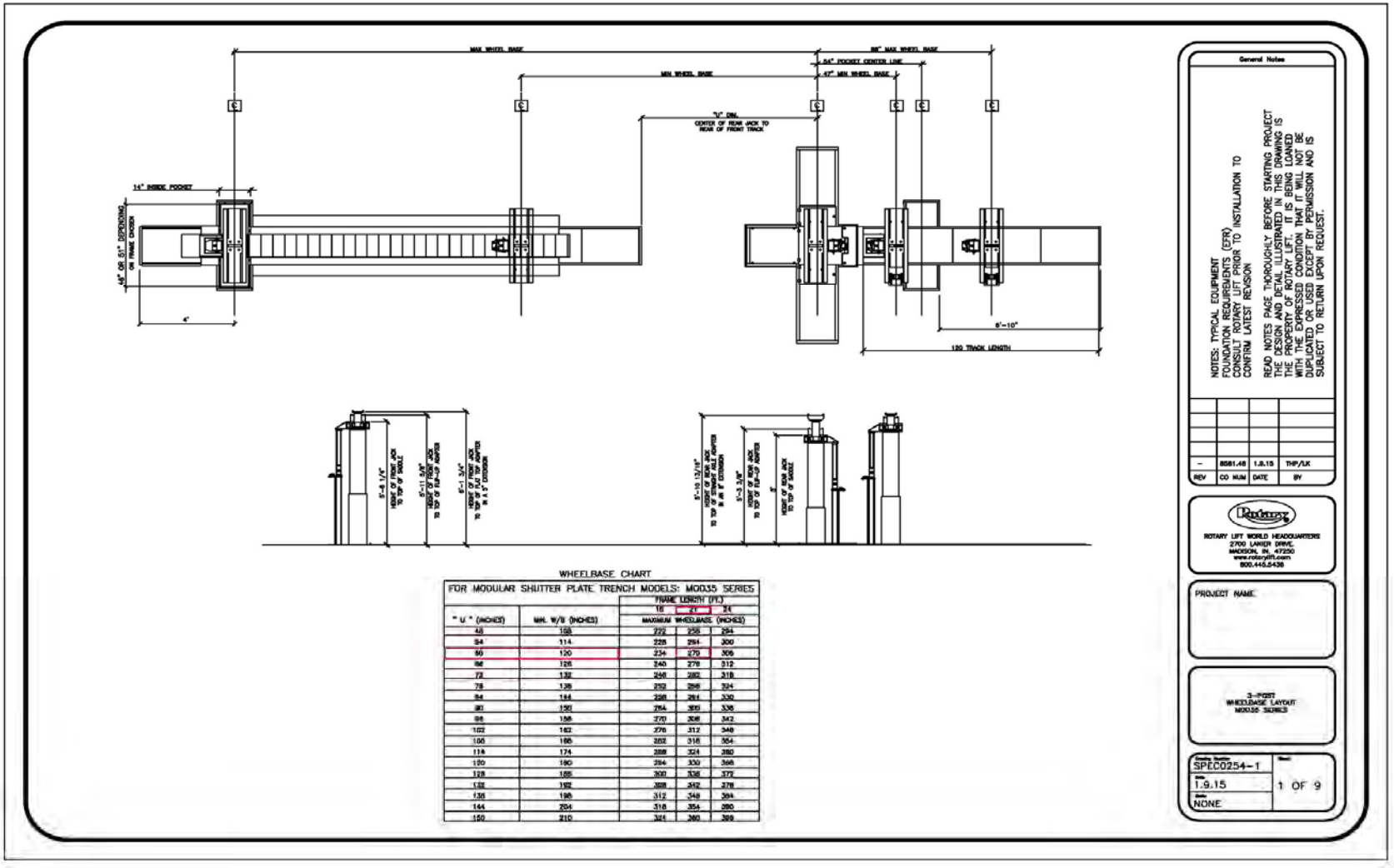
EQ ID Number:

5630

5630 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Lift, axle, three post, 105,000 pound, shallow design	**5630**

Manufacturer: Rotary Lifts **Model No.:** MOD335 with accessories



5645 Equipment Datasheet

Manufacturer:	**Rotary Lift**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**75/48-F with accessories**						**Equipment**		**576**		**112**		**63**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	N	**Operational Clearance**	**Left** / **Right**	--- / ---		**Front** / **Back**	--- / ---	**Above** / **Below**	--- / ---

DISCIPLINE COORDINATION:							
Architectural	Coordinate with overhead door clearances; Control panel mounted on housekeeping pad; Coordinate conduit in slab from controls to lift.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**			
Structural	Pits and other concrete work shall be provided per design details; Housekeeping pad shall be sized for equipment console.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**Y**			
Mechanical	---	**Venting**	Connection (inches)	---			
			Volume (CFM)	---			
Electrical	Provide disconnect near controls; provide two inch conduit in slab from controls to the lift; Coordinate with design details.	**Connection Size**	Requirements	**Unit**	---	---	
			Voltage	**460**	---	---	
			Phase	**3**	---	---	
			Horsepower (HP)	**20**	---	---	
			Amps	---	---	---	
		Connection Type	**Provide disconnect**				
Plumbing	Provide floor drain in each lift recess; Coordinate with design details.	**Domestic Water**	Connection (inches)	---			
			Flow Rate (GPM)	---			
			Capacity (PSI)	---			
		Natural Gas	Connection (inches)	---			
			Capacity (BTU)	---			
		Drain	Floor Drain (Y/N)	**N**			
		Compressed Air	Connection (inches)	**1/2**			
			Volume (CFM)	**5**			
			Capacity (PSI)	**120**			

Equipment Description:

Lift, parallelogram, 75,000 pounds, 48 feet

EQ ID Number:

5645

5645 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Lift, parallelogram, 75,000 pounds, 48 feet	**5645**

Manufacturer: Rotary Lift **Model No.:** 75/48-F with accessories



Surface in recessed mount



Model:	75/48-S 75/48-F
Rise*	63" (1600mm)
Lifting Capacity	75,000 lbs. (34000kg)
Length Platform	48' (14630mm)
Length Overall	56' 3 3/16" (17150mm) 48' (14630mm)
Width Platform	32" (813mm)
Width Overall	109" (2769mm)
Height Retracted	12 7/8" (327mm) Flush
Motor	20hp
Number of Legs	8
Min. Floor Thickness	6 3/4" (152mm) 9" (229mm)

* Rise is calculated from

5692 Equipment Datasheet

Manufacturer:	**Stertil-Koni**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**ECO90 with accessories**							**Equipment**	**---**		**66**		**---**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y		**Operational Clearance**	**Left** 160 **Right** 160		**Front** 120 **Back** 120		**Above** 228 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	Coordinate foundation requirements with structural. Mount control console on housekeeping pad. Refer to Design Details for size and location of concrete block out service opening.							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Structural	Concrete work shall be per manufacturer's shop drawings for a complete flush with floor installation; Control console on housekeeping pad.							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Mechanical	---							**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	Provide fused disconnect on wall or column near control console; Provide conduit under slab between disconnect and control console and between console and lift; Reference Design Details.							**Connection Size**	Requirements	**Unit**	**---**	**---**		
									Voltage	**460**	**---**	**---**		
									Phase	**3**	**---**	**---**		
									Horsepower (HP)	**15**	**---**	**---**		
									Amps	**13**	**---**	**---**		
								Connection Type	**Provide disconnect**					
Plumbing	Provide 2 inch conduit in slab from adjacent wall to control console for compressed air; Provide floor drain in each pit; Reference Design Details.							**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Drain (Y/N)		**Y**			
								Compressed Air	Connection (inches)		**1/4**			
									Volume (CFM)		**5**			
									Capacity (PSI)		**60**			

Equipment Description:

Lift, axle, scissor, adjustable, 90,000 pound

EQ ID Number:

5692

5692 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Lift, axle, scissor, adjustable, 90,000 pound	**5692**

Manufacturer: Stertil-Koni **Model No.:** ECO90 with accessories



7242 Equipment Datasheet

Manufacturer:	**Lincoln Industrial (SKF Lubrication)**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**LFC-6000**						**Equipment**	**---**		**---**		**---**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** -- **Right** --		**Front** -- **Back** --		**Above** 24 **Below** --	

DISCIPLINE COORDINATION:

Architectural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Structural	---	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Mechanical	---	**Venting**	Connection (inches)	**---**				
			Volume (CFM)	**---**				
Electrical	Data wiring shall be routed in conduit provided by contractor; Provide power and data outlets for each item; Reference layout plans.	**Connection Size**	Requirements	Tank Level Monitor Controller	Dispense Units	Tank Level Monitors		
			Voltage	**120**	**120**	**120**		
			Phase	**1**	**1**	**1**		
			Horsepower (HP)	**---**	**---**	**---**		
			Amps	**---**	**---**	**---**		
		Connection Type	**Standard grounded receptacle**					
Plumbing	---	**Domestic Water**	Connection (inches)	**---**				
			Flow Rate (GPM)	**---**				
			Capacity (PSI)	**---**				
		Natural Gas	Connection (inches)	**---**				
			Capacity (BTU)	**---**				
		Drain	Floor Drain or Sink Drain (Y/N)	**N**				
		Compressed Air	Connection (inches)	**---**				
			Volume (CFM)	**---**				
			Capacity (PSI)	**---**				

Equipment Description:

Fluid management system (wired)

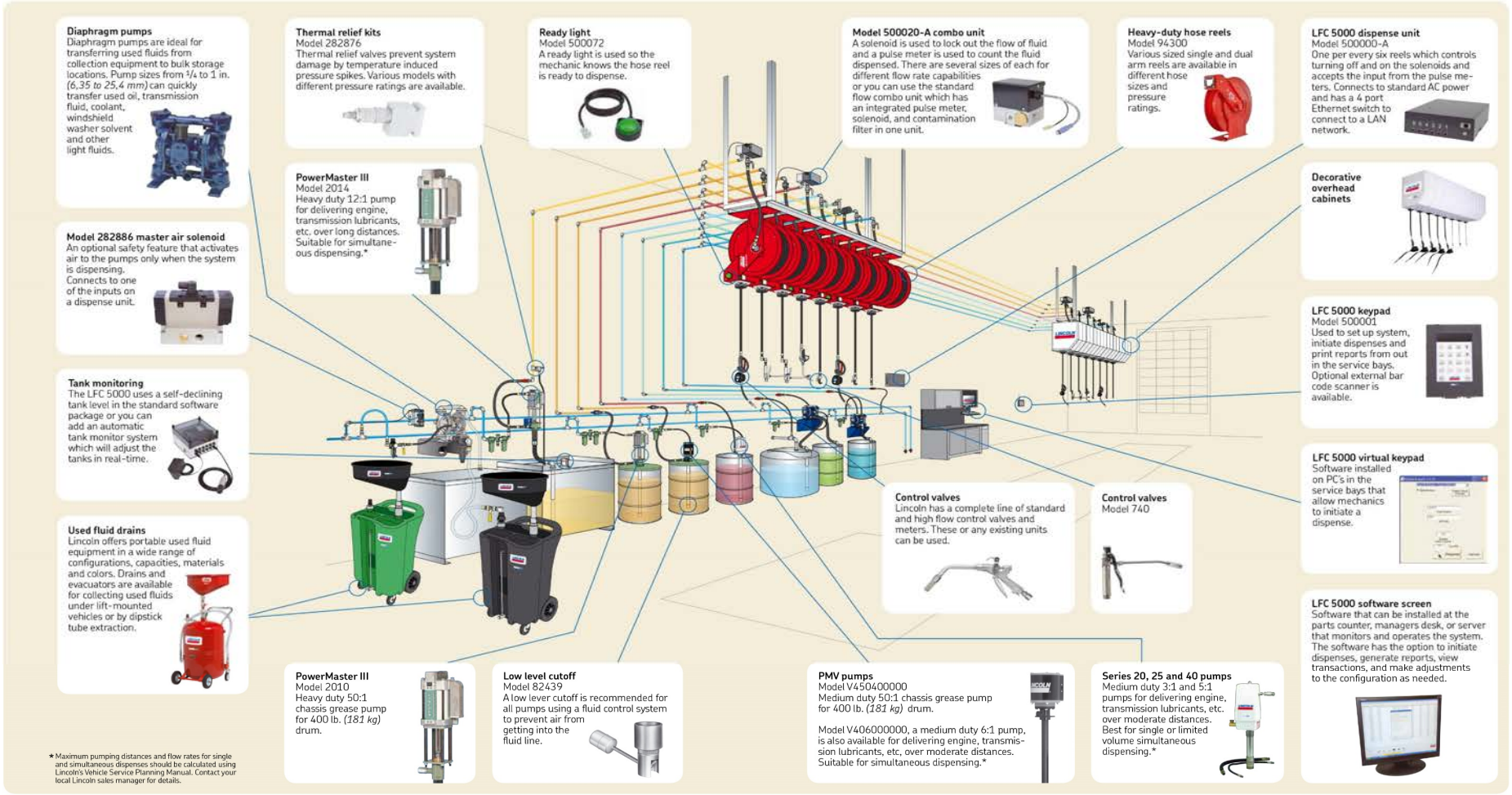
EQ ID Number:

7242

7242 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Fluid management system (wired)	**7242**

Manufacturer: Lincoln Industrial (SKF Lubrication) **Model No.:** LFC-6000



7520 Equipment Datasheet

Manufacturer:	**Graco, Inc.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**425 Fire-Ball**						**Equipment**		**8 dia.**		**---**		**28-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	**12** / **12**		**Front** / **Back**	**12** / **12**	**Above** / **Below**	**18** / **---**
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	---						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**1/2 NPT(F)**			
									Volume (CFM)		**24**			
									Capacity (PSI)		**100**			

Equipment Description:

Pump, air piston, 10:1 ratio (commodity)

EQ ID Number:

7520

7520 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Pump, air piston, 10:1 ratio (commodity)	**7520**

Manufacturer: Graco, Inc. **Model No.:** 425 Fire-Ball



7531 Equipment Datasheet

Manufacturer:	**Graco, Inc.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**647016 for water/antifreeze, 647731 for OH**						**Equipment**		**14-3/4**		**10-1/4**		**16**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** 12 **Right** 12		**Front** 12 **Back** ---		**Above** 18 **Below** 12	
DISCIPLINE COORDINATION:														
Architectural	Coordinate wall mounting of pump above tank.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate wall mounting of pump above tank. Weight: 23 pounds.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	Plumb to reel banks; Provide compressed air from main compressed air loop.						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain or Floor Sink (Y/N)		**N**			
							Compressed Air		Connection (inches)		**1/2**			
									Volume (CFM)		**67**			
									Capacity (PSI)		**100**			

Equipment Description:

Pump, diaphragm, non-mixing (EC)

EQ ID Number:

7531

7531 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Pump, diaphragm, non-mixing (EC)	**7531**

Manufacturer:	Graco, Inc.	Model No.:	647016 for water/antifreeze, 647731 for OH



7541 Equipment Datasheet

Manufacturer:	**Graco, Inc.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)		
Model No.:	**24E166 with accessories**						**Equipment**		**14-3/4**		**10-3/4**		**16**		
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** 12 **Right** 12		**Front** 12 **Back** ---		**Above** 18 **Below** 12		
DISCIPLINE COORDINATION:															
Architectural	Coordinate mounting of pump.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**				
Mechanical	---						**Venting**		Connection (inches)		**---**				
									Volume (CFM)		**---**				
Electrical	Route control wiring in conduit between fluid monitoring system and solenoid valve and strobe at corresponding extraction pump; Provide dedicated outlet adjacent to unit.						**Connection Size**		Requirements	**Unit**	**---**	**---**			
									Voltage	**120**	**---**	**---**			
									Phase	**1**	**---**	**---**			
									Horsepower (HP)	**---**	**---**	**---**			
									Amps	**2**	**---**	**---**			
							Connection Type		**Provide standard grounded receptacle**						
Plumbing	Plumb to used fluid tank; Provide compressed air from main compressed air loop.						**Domestic Water**		Connection (inches)		**---**				
									Flow Rate (GPM)		**---**				
									Capacity (PSI)		**---**				
							Natural Gas		Connection (inches)		**---**				
									Capacity (BTU)		**---**				
							Drain		Floor Drain (Y/N)		**N**				
							Compressed Air		Connection (inches)		**1/2**				
									Volume (CFM)		**67**				
									Capacity (PSI)		**100**				

Equipment Description:

Pump, diaphragm, used fluid evacuation (UC)

EQ ID Number:

7541

7541 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Pump, diaphragm, used fluid evacuation (UC)	**7541**

Manufacturer: Graco, Inc. **Model No.:** 24E166 with accessories



7575 Equipment Datasheet

Manufacturer:	**Graco Incorporated**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**220592 and 247713 with accessories**						**Equipment**	**2**		**2**		**10**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 12 **Right** 12		**Front** 12 **Back** 12		**Above** 12 **Below** 12	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	Plumbed to tank in Lube Room.						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Hose and dispenser (GO)

EQ ID Number:

7575

7575 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Hose and dispenser (GO)	**7575**

Manufacturer:	Graco Incorporated	Model No.:	220592 and 247713 with accessories





7710 Equipment Datasheet

Manufacturer:	**Graco, Inc.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**XD Series**						**Equipment**		---		---		---	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** / **Right**	**3-1/2** / **3-1/2**	**Front** / **Back**	**48** / **48**	**Above** / **Below**	--- / ---	
DISCIPLINE COORDINATION:														
Architectural	Coordinate mounting of reel banks with structural.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Reel bank shall be hung from a structural frame with mounting plate at 16 feet AFF; Weight approximately 100 pounds; Reference Equipment Drawing Details.						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	Plumb to lube/compressor room.						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Reel bank

EQ ID Number:

7710

7710 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Reel bank	**7710**

Manufacturer: Graco, Inc. **Model No.:** XD Series



7780 Equipment Datasheet

Manufacturer:		**Graco, Inc.**					**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**XD Series**						**Equipment**	---		---		---	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** / **Right**	**3-1/2** / **3-1/2**		**Front** / **Back**	**48** / **48**	**Above** / **Below**	**---** / **168**

DISCIPLINE COORDINATION:					
Architectural	Coordinate mounting of reel banks with structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Structural	Reel bank shall be hung from a structural frame with mounting plate at 16 feet AFF; Weight approximately 800 pounds; Reference Design Details.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**	
Mechanical	---	**Venting**	Connection (inches)	**---**	
			Volume (CFM)	**---**	
Electrical	---	**Connection Size**	Requirements	**---**	**---** / **---**
			Voltage	**---**	**---** / **---**
			Phase	**---**	**---** / **---**
			Horsepower (HP)	**---**	**---** / **---**
			Amps	**---**	**---** / **---**
		Connection Type	**---**		
Plumbing	Plumb to lube/compressor room.	**Domestic Water**	Connection (inches)	**---**	
			Flow Rate (GPM)	**---**	
			Capacity (PSI)	**---**	
		Natural Gas	Connection (inches)	**---**	
			Capacity (BTU)	**---**	
		Drain	Floor Drain (Y/N)	**N**	
		Compressed Air	Connection (inches)	**---**	
			Volume (CFM)	**---**	
			Capacity (PSI)	**---**	

Equipment Description:

Reel bank (CA, diff. GO1, GO2, H2O, CO, Power Steering PS. future)

EQ ID Number:

7780

7780 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Reel bank (CA, diff. GO1, GO2, H2O, CO, Power Steering PS. future)	**7780**

Manufacturer: Graco, Inc. **Model No.:** XD Series



7907 Equipment Datasheet

Manufacturer:	**Snyder Industries**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**5740100N**						**Equipment**	**47 dia.**		**---**		**58-1/2**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** 48 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Approx. wet weight (water): 2,296 pounds. Approx. dry weight: 96 pounds.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Tank, double wall, polyethylene, 275 gallon (commodity)

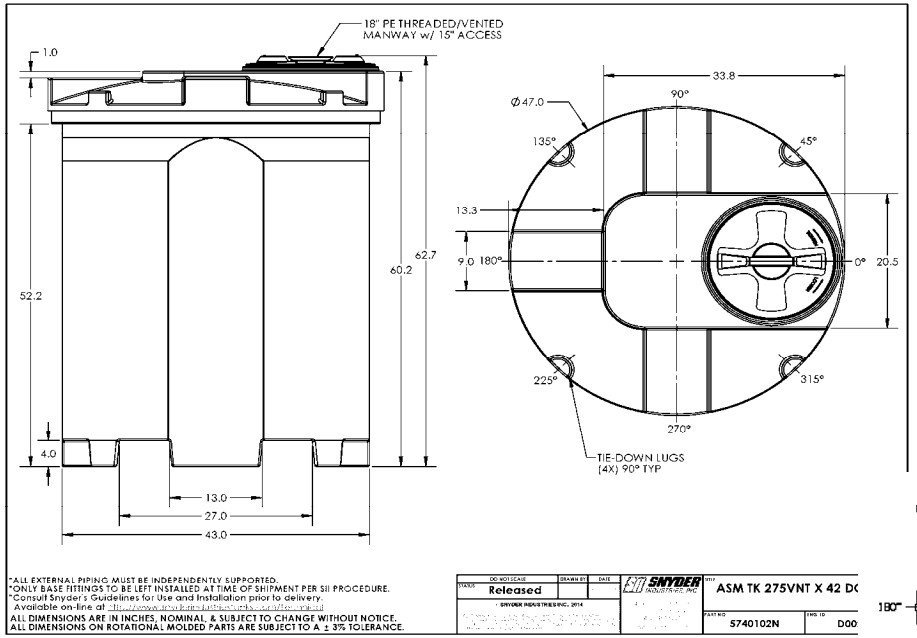
EQ ID Number:

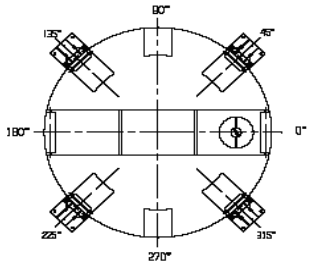
7907

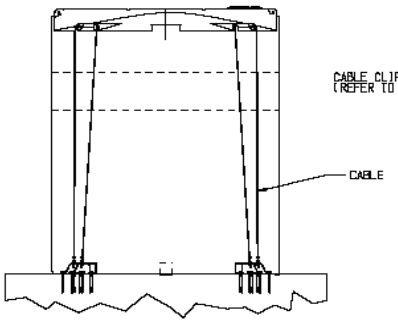
7907 Equipment Cutsheet

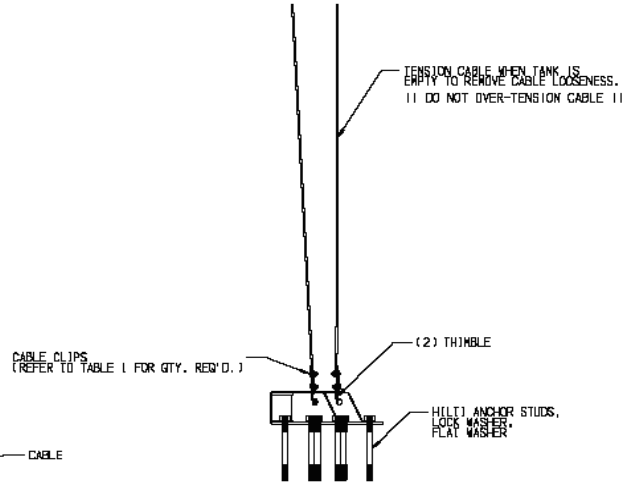
Equipment Description:	EQ ID Number:
Tank, double wall, polyethylene, 275 gallon (commodity)	**7907**

Manufacturer: Snyder Industries **Model No.: 5740100N**









7970 Equipment Datasheet

Manufacturer:	**Containment Solutions, Incorporated**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**LC500DW with accessories**						**Equipment**		**61**		**46**		**61**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** / **Right**	**6** / **6**	**Front** / **Back**	**72** / **6**	**Above** / **Below**	**48** / **0**	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Dry Weight: 1,350 pounds; Filled Weight: 11,273 pounds; Anchored at tabs; anchor size by Structural Engineer						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	Provide venting to exterior [for used fluid tanks only].						**Venting**		Connection (inches)		**2**			
									Volume (CFM)		**---**			
Electrical	[For UO/UC tanks only with Fluid Management System] Control wiring between Fluid Monitoring System and solenoid valve at corresponding extraction pump; Route all wiring in conduit; Provide outlet(s) on wall above tank for alarm or Fluid Management System (FMS), pump air control (PAC); Control wiring between FMS and tank; Route in conduit.						**Connection Size**		Requirements	**PAC**	**Alarm**	**FMS**		
									Voltage	**120**	**120**	**120**		
									Phase	**1**	**1**	**1**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**2**	**---**	**1**		
							Connection Type		**Receptacle, Standard Grounded**					
Plumbing	Plumb to corresponding overhead reels/used fluid pumps.						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Sink (Y/N)		**N**			
							Compressed Air		Connection (inches)		**1/2**			
									Volume (CFM)		**60**			
									Capacity (PSI)		**50**			

Equipment Description:

Tank, double wall, cube, 500 gallon (commodity)

EQ ID Number:

7970

7970 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Tank, double wall, cube, 500 gallon (commodity)	**7970**

Manufacturer: Containment Solutions, Incorporated **Model No.:** LC500DW with accessories



7993 Equipment Datasheet

Manufacturer:	**Graco Incorporated**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**218 969 with accessories**						**Equipment**	**33**		**24**		**11**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 6 **Right** 6		**Front** 36 **Back** 6		**Above** 2 **Below** 12	
DISCIPLINE COORDINATION:													
Architectural	Coordinate clearances and design with structural. Drain pan shall travel on rails the complete length of pit and store at end of pit under a steel plate flush with the finished floor.; rails must be 2-1/2 inches wide to support drain pan wheels for travel on.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Drain pan shall travel on rails the complete length of pit and store at end of pit under a steel plate flush with the finished floor.; rails must be 2-1/2 inches wide to support drain pan wheels for travel on.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**		
								Voltage	**---**	**---**	**---**		
								Phase	**---**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**---**	**---**	**---**		
							Connection Type	**---**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Sink (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Drain pan, rolling (UC)

EQ ID Number:

7993

7993 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Drain pan, rolling (UC)	**7993**

Manufacturer: Graco Incorporated **Model No.:** 218 969 with accessories



7995 Equipment Datasheet

Manufacturer:	**Graco, Incorporated**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**248632**						**Equipment**		**24**		**24**		**45**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**		**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** 30 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	---						**Housekeeping Pad**		Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**		Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	---						**Connection Size**		Requirements	**---**	**---**	**---**		
									Voltage	**---**	**---**	**---**		
									Phase	**---**	**---**	**---**		
									Horsepower (HP)	**---**	**---**	**---**		
									Amps	**---**	**---**	**---**		
							Connection Type		**---**					
Plumbing	3/4" pump connection						**Domestic Water**		Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
							Natural Gas		Connection (inches)		**---**			
									Capacity (BTU)		**---**			
							Drain		Floor Drain (Y/N)		**N**			
							Compressed Air		Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Receiver, 25 gallon, portable (UC)

EQ ID Number:

7995

7995 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Receiver, 25 gallon, portable (UC)	**7995**

Manufacturer: Graco, Incorporated **Model No.:** 248632



7996 Equipment Datasheet

Manufacturer:	**Graco, Incorporated.**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**238866**							**Equipment**	**24**		**24**		**45**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** 30 **Below** ---		
DISCIPLINE COORDINATION:														
Architectural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**					
Mechanical	---						**Venting**	Connection (inches)	**---**					
								Volume (CFM)	**---**					
Electrical	---						**Connection Size**	Requirements	**---**	**---**	**---**			
								Voltage	**---**	**---**	**---**			
								Phase	**---**	**---**	**---**			
								Horsepower (HP)	**---**	**---**	**---**			
								Amps	**---**	**---**	**---**			
							Connection Type	**---**						
Plumbing	3/4" pump connection.						**Domestic Water**	Connection (inches)	**---**					
								Flow Rate (GPM)	**---**					
								Capacity (PSI)	**---**					
							Natural Gas	Connection (inches)	**---**					
								Capacity (BTU)	**---**					
							Drain	Floor Drain (Y/N)	**N**					
							Compressed Air	Connection (inches)	**---**					
								Volume (CFM)	**---**					
								Capacity (PSI)	**---**					

Equipment Description:

Receiver, 25 gallon, portable (UO)

EQ ID Number:

7996

7996 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Receiver, 25 gallon, portable (UO)	**7996**

Manufacturer: Graco, Incorporated. **Model No.:** 238866



8276 Equipment Datasheet

Manufacturer:	**Kaeser Compressor**						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**ASD40ST**							**Equipment**	**69-5/8**		**35-3/8**		**60-1/4**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** 15 **Right** 40		**Front** 50 **Back** 40		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural	Coordinate size of housekeeping pad with equipment.							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Structural	Coordinate size of housekeeping pad with equipment. Weight: 1,747 pounds.							**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Mechanical	Heat rejection: 119,270 BTU/hour; 8240 CFM. No equipment vibration isolation if mounted slab on grade. Refrigerant: R-134A, 1.76 pounds.							**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical	Provide fusible disconnect with 70 A fuse. Provide data port.							**Connection Size**	Requirements	**Unit**	---	---		
									Voltage	**460**	**---**	**---**		
									Phase	**3**	**---**	**---**		
									Horsepower (HP)	**40**	**---**	**---**		
									Amps	**47**	**---**	**---**		
								Connection Type	**Provide disconnect**					
Plumbing	Floor sink between compressor and dryer on housekeeping pad to sand-oil interceptor							**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Sink Drain (Y/N)		**Y**			
								Compressed Air	Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Compressor, air, screw, rotary, 40 HP, with integral dryer

EQ ID Number:

8276

8276 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Compressor, air, screw, rotary, 40 HP, with integral dryer	**8276**

Manufacturer: Kaeser Compressor **Model No.:** ASD40ST

Technical Specifications

Model	Pressure Range [1] (psig)	Capacity (acfm) [2]	Rated Motor Power (hp)	Sound Level (dB(A)) [3]	Standard Air-cooled [4] Units Dimensions L x W x H (in.)	Weight (lb.) [5]	Air-Cooled Units with Integral Dryer Dimensions L x W x H (in.)	Weight (lb.) [5]
ASD 25	125	112	25	66		1345		1555
ASD 30	125	132	30	67		1369		1579
	175	110						
ASD 40S	125	162	40	67	57 1/2 x 35 1/2 x 60 1/4	1537	69 5/8 x 35 1/2 x 60 1/4	1747
	175	127						
	217	106						
ASD 40	125	191	40	69		1570		1779
	175	159						
	217	123						



8637 Equipment Datasheet

Manufacturer:		**Manchester Tank**					**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:		**302433**						**Equipment**	**36 dia.**		**---**		**101**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N		**Operational Clearance**	**Left** 24 **Right** 24		**Front** 42 **Back** 24		**Above** 24 **Below** ---	
DISCIPLINE COORDINATION:														
Architectural		Coordinate size of housekeeping pad with equipment.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Structural		Unit weight: 783 pounds						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**Y**			
Mechanical		---						**Venting**	Connection (inches)		**---**			
									Volume (CFM)		**---**			
Electrical		---						**Connection Size**	Requirements	**---**	**---**	**---**	
									Voltage	**---**	**---**	**---**	
									Phase	**---**	**---**	**---**	
									Horsepower (HP)	**---**	**---**	**---**	
									Amps	**---**	**---**	**---**	
								Connection Type	**---**					
Plumbing		Floor sink adjacent to compressor, dryer, and receiver to oil seperator. 1 inch NPT drain connection.						**Domestic Water**	Connection (inches)		**---**			
									Flow Rate (GPM)		**---**			
									Capacity (PSI)		**---**			
								Natural Gas	Connection (inches)		**---**			
									Capacity (BTU)		**---**			
								Drain	Floor Sink (Y/N)		**Y**			
								Compressed Air	Connection (inches)		**---**			
									Volume (CFM)		**---**			
									Capacity (PSI)		**---**			

Equipment Description:

Receiver, vertical mounted, 400 gallon

EQ ID Number:

8637

8637 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Receiver, vertical mounted, 400 gallon	**8637**

Manufacturer: Manchester Tank **Model No.:** 302433



9315 Equipment Datasheet

Manufacturer:	**Unilube Systems**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Pit Guard, Pit Cover**						**Equipment**	**38**		**40-1/2**		**2**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y	**Operational Clearance**	**Left** **Right**	**1/2** **1/2**	**Front** **Back**	**0** **0**	**Above** **Below**	**0** **0**

DISCIPLINE COORDINATION:

Architectural	Coordinate clearances and design with structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Pit guard cover will sit on rails the entire length of pit; Provide support for pit guard; Reference Manufacturer's Equipment Design Details.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	---	**Venting**	Connection (inches)	---		
			Volume (CFM)	---		
Electrical	---	**Connection Size**	Requirements	---	---	---
			Voltage	---	---	---
			Phase	---	---	---
			Horsepower (HP)	---	---	---
			Amps	---	---	---
		Connection Type	---			
Plumbing	---	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Drain (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Cover, safety, metal

EQ ID Number:

9315

9315 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Cover, safety, metal	**9315**

Manufacturer: Unilube Systems **Model No.:** Pit Guard, Pit Cover



9350 Equipment Datasheet

Manufacturer:	3M						**Dimensions**		**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	1101643							**Equipment**	**11-3/4**		**8-3/4**		**11-1/2**	
Provided:	Cutsheet	Y	Functional Model	N	Design Details	Y		**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** 36	

DISCIPLINE COORDINATION:

Architectural	Coordinate OSHA clearances, overhead door clearances, ducting clearances, and process pipe routing with mechanical and design with structural.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Structural	Provide I-Beam; Static load of at least 5,000 pounds; Reference Design Details.	**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**		
Mechanical	Coordinate ducting and HVAC equipment with architectural to avoid conflicts with operation of the safety harness.	**Venting**	Connection (inches)	---		
			Volume (CFM)	---		
Electrical	---	**Connection Size**	Requirements	**Power Tagline**	---	---
			Voltage	**120**	---	---
			Phase	**1**	---	---
			Horsepower (HP)	**1.6**	---	---
			Amps	**12**	---	---
		Connection Type	**Provide standard grounded receptacle**			
Plumbing	Coordinate piping with architect to avoid conflicts with the operation of the safety harness.	**Domestic Water**	Connection (inches)	---		
			Flow Rate (GPM)	---		
			Capacity (PSI)	---		
		Natural Gas	Connection (inches)	---		
			Capacity (BTU)	---		
		Drain	Floor Sink (Y/N)	**N**		
		Compressed Air	Connection (inches)	---		
			Volume (CFM)	---		
			Capacity (PSI)	---		

Equipment Description:

Harness, safety, I-beam, trolley, self-retracting

EQ ID Number:

9350

9350 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Harness, safety, l-beam, trolley, self-retracting	**9350**

Manufacturer: 3M **Model No.:** 1101643











9900 Equipment Datasheet

Manufacturer:	**Genfare**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Dualport stationary vault**						**Equipment**	**32**		**36**		**66**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** 24 **Right** 24		**Front** 60 **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Coordinate with manufacturer's shop drawings for installation of through wall vault receiver; Coordinate probe and retractor location, if applicable.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Structural	---						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)	**N**				
Mechanical	---						**Venting**	Connection (inches)	---				
								Volume (CFM)	---				
Electrical	---						**Connection Size**	Requirements	---	---	---		
								Voltage	---	---	---		
								Phase	---	---	---		
								Horsepower (HP)	---	---	---		
								Amps	---	---	---		
							Connection Type	---					
Plumbing	---						**Domestic Water**	Connection (inches)	---				
								Flow Rate (GPM)	---				
								Capacity (PSI)	---				
							Natural Gas	Connection (inches)	---				
								Capacity (BTU)	---				
							Drain	Floor Sink (Y/N)	**N**				
							Compressed Air	Connection (inches)	---				
								Volume (CFM)	---				
								Capacity (PSI)	---				

Equipment Description:

Vault, collection, revenue

EQ ID Number:

9900

9900 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Vault, collection, revenue	**9900**

Manufacturer: Genfare **Model No.:** Dualport stationary vault



9910 Equipment Datasheet

Manufacturer:	**Genfare**						**Dimensions**	**Length** (inches)		**Width** (inches)		**Height** (inches)	
Model No.:	**Garage Data System with accessories**						**Equipment**	**---**		**---**		**---**	
Provided:	Cutsheet	Y	Functional Model	Y	Design Details	N	**Operational Clearance**	**Left** --- **Right** ---		**Front** --- **Back** ---		**Above** --- **Below** ---	
DISCIPLINE COORDINATION:													
Architectural	Coordinate location of data probe installation.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Structural	Coordinate location of data probe installation.						**Housekeeping Pad**	Mounted 6 inch high, steel reinforced (Y/N)		**N**			
Mechanical	---						**Venting**	Connection (inches)		**---**			
								Volume (CFM)		**---**			
Electrical	Provide one inch conduit from probe to electrical room; Provide one inch conduit for data/control wire from system computer to j-box (up to 1,000 feet).						**Connection Size**	Requirements	**Unit**	**---**	**---**		
								Voltage	**120**	**---**	**---**		
								Phase	**1**	**---**	**---**		
								Horsepower (HP)	**---**	**---**	**---**		
								Amps	**20**	**---**	**---**		
							Connection Type	**Provide j-box**					
Plumbing	---						**Domestic Water**	Connection (inches)		**---**			
								Flow Rate (GPM)		**---**			
								Capacity (PSI)		**---**			
							Natural Gas	Connection (inches)		**---**			
								Capacity (BTU)		**---**			
							Drain	Floor Drain (Y/N)		**N**			
							Compressed Air	Connection (inches)		**---**			
								Volume (CFM)		**---**			
								Capacity (PSI)		**---**			

Equipment Description:

Probe, farebox, with software system

EQ ID Number:

9910

9910 Equipment Cutsheet

Equipment Description:	EQ ID Number:
Probe, farebox, with software system	**9910**

Manufacturer: Genfare **Model No.:** Garage Data System with accessories



APPENDIX B: SFMTA OCS DESIGN CRITERIA

GENERAL NOTES

- OCS is only located in the parking areas and certain maintenance bays, as noted.
- Relevant requirements fall in the 2018 criteria (pp 1-5). The remaining information are reference materials that may inform some design decisions.
- LMD shall design a site specific solution, with deviations from the tension requirements outlined in this appendix permitted upon approval by the SFMTA.
- LMD shall take particular note to design an OCS solution for the trolley fleet that anticipates a smooth transition to future battery electric bus.

I. GENERAL

These criteria govern the Overhead Contact System (OCS) design, to provide a safe, reliable and efficient system to deliver electrical power to support and Electric Trolleybuses (ETBs).

A. References

The latest edition of the applicable standards, codes, and guidelines of the following organizations shall be used for all designs unless otherwise required by this section:

- California Public Utilities Commission (CPUC) General Order No. 95, Rules for Overhead Line Construction
- California Public Utilities Commission (CPUC) General Order No. 128, Rules for Construction of Underground Electric Supply and Communications Systems.
- Muni High Performance Trolley Coach Overhead Wire Minimum Standards
- Design standards and criteria developed on previous Muni projects
- American with Disabilities Act (ADA), 49 CFR parts 27, 37 and 38
- American National Standards Institute (ANSI) C2, National Electric Safety Code
- American Public Transit Association (APTA) – Rapid Transit Standards
- California Code of Regulation (CCR), Title 8, Industrial Relation
- California Code of Regulation (CCR), Title 23, Waters
- California Code of Regulation (CCR), Title 24, Building Standards Code
- California Occupational Safety and Health Association (Cal OSHA)
- City of San Francisco Standard Plans and Specifications
- Code of Federal Regulations, Title 29, Part 1910, Occupational Safety and Health Standards
- Code of Federal Regulations, Title 41, Public Contracts and Property Management
- Code of Federal Regulations, Title 49, Part 212, State Safety Participation Regulations

- Illuminating Engineering Society (IES) Model Lighting Ordinance (MLO)
- Insulated Cable Engineers Association (ICEA)
- National Electric Code (NEC)
- National Electrical Manufacturers Association (NEMA)
- National Fire Protection Association (NFPA) Standard 130, Fixed Guideway Transit and Passenger Rail Systems
- Occupational Safety and Health Act of 1970 (OSHA)
- San Francisco County Ordinance Code
- San Francisco Municipal Code
- Telecommunications Industry Association (TIA)
- Underwriters Laboratories (UL)
- Uniform Building Code (UBC)
- Uniform Fire Code (UFC)
- Uniform Plumbing Code (UPC)

Where more than one code, standard, or criterion is applicable, the most restrictive shall govern, except as indicated in this document. The Safety Criteria shall be reviewed in light of new editions and issues of these codes and standards at the beginning of each design phase and shall be amended as appropriate. All materials, equipment, design, manufacturing methods, installation, and testing shall conform to all applicable Federal, State, and local codes and regulations. In addition, Muni standards and established Industry Standards and practices shall govern the design and construction.

II. DESIGN CRITERIA

This section provides the general OCS design criteria. Project specific design criteria addressing the project needs should also be incorporated.

A. Electric Trolley Buses (ETBs)

Overhead hardware used should be products of manufacturers regularly engaged in the production of such material and equipment, and is of the manufacturer's latest design

approved by Muni. This is to ensure compatibility and interchangeability with the current Muni overhead hardware and spare parts. The following are specific hardware characteristics for the project:

1. Hardware Criteria

   i. Overhead Contact System Type shall be a rigid type system similar to Ohio Brass (OB)/Westinghouse Air Brake Company (WASCO)/Impulse NC, Inc Contact System.

   ii. Contact Wire- Contact wire shall be bronze, grooved, alloy 80 conforming to ASTM B9-90. The following characteristics shall be used:

Table II.B.1 Trolley System Contact Wire Standards

Description	Min. Standards
Contact Wire for Trolley Vehicles	#4/0 or #2/0
#4/0 Contact Wire Tension @ 60°F	3000 lb per wire
#2/0 Contact Wire Tension @ 60°F	2000 lb per wire
Contact Wire Height	19ft-6in ± 3in
Contact Wire Spacing	2ft
Axis of Trolley wire pair from curb unless otherwise noted	14ft
Maximum Unsupported Contact Wire Span	100ft

   iii. Within the facility envelope, the conductor for OCS can either be a rigid section or contact wire, as described above.

   iv. Overhead Components and Trolley Wire Replacement – Replace overhead components and trolley wires that have a service life of less than 50%.

   v. Leading Switch -15° Induction Controlled

2. Trolley Wire Alignment shall be in accordance with guidelines and criteria established by Municipal Railway High Performance Trolley Coach Overhead Minimum Standards.

3. Conduit

   i. UL listed fiberglass conduit is acceptable for traction power cables at any point of the circuits.
   ii. Where conduits located at any place that are potentially subjected to any physical damages, protective Ballard should be provided.

C. Overhead Supports and Foundations

1. OCS Poles

Steel poles shall be in accordance with Muni Standard Drawing CL-7971, Rev. 2. Standard pole Types 761N, 765N, 767 and 770 should be used.

New poles should be in line with property line between adjacent properties and avoid fronting doors, windows, and access ways wherever possible. They should be located within the first flag from the curb (18in to near side face and 24in to center of pole approximately). New poles should be 3ft from low-pressure hydrant and 5ft from high-pressure hydrant from centerline of pole to centerline of hydrant. New poles should be located away from new and existing ADA curb ramps, trees, sub-sidewalk basements, etc.

Where an existing pole is replaced with a new pole, the new pole should be 4ft away (minimum) from the present location. At intersections adjoining side platforms the poles should be as clear of the corner as possible to avoid being hit by right turning trucks. Other overhead utilities might share pole and air space such as PG&E, PAC Bell, TCI and/or Viacom.

Wherever possible, poles should be combined with streetlight and traffic signals to reduce the number of poles. Combination poles should be located within 3ft of perpendicular property line.

Poles with feeder risers inside should not be combined with traffic signals.

2. Poles Foundations

Unless otherwise noted, existing foundations should be removed to a depth of 3ft below the finished grade. Where a pole has to be replaced in place due to space constraint, the existing foundation should be removed entirely and new foundation installed in place.

New standard pole foundations shall be in accordance with Muni Standard Drawing CL-7971, Rev. 2. Where special foundations are required, they shall be designed according to the current codes, regulations and field conditions.

3. Pole Replacement

Replace City-owned wood, segmented, concrete, and/or steel poles that are bending, leaning, deeply pitted, undersized, with exposed rebars, rusted and/or with holes along the shaft or base.

4. Protection Devices

Wood troughs, preformed glass/epoxy shields, or approved apparatus of a custom design if necessary, should be used wherever the overhead support structure shall be protected against possible arcing conditions and in accordance to the GO 95, Rules for Overhead Lines Construction.

Guy wire span supports shall include tree guard or similar item to protect against trolley shoe snags during dewirement from a trolley vehicle.

5. Finish Treatment

   Unless otherwise required by urban design requirements or streetscape master plan, new steel pole shall have a galvanized finish (Not Painted). Existing steel trolley pole shall be painted to match galvanizing or existing coating color. Anti-graffiti coating shall be applied to the bottom 8 ft of the pole.

6. All new OCS poles shall be grounded.

D. Sectionalization and Catenary Detection System

1. OCS Sectionalization

   Provide a separate sectionalization switch for each repair bay where OCS is required to be installed.

   In all electric trolly bus parking areas, provide a separate sectionalization switch for each grouping of three bus parking lanes. If two parking lanes are remaining in a contiguous parking array after the lanes are grouped in three, then those two remaining parking lanes must have their own switch. If one parking lane is remaining in a contiguous parking array after the lanes are grouped in three, then add the one remaining lane to the adjacent group of three lanes. For clarity, a parking lane is where buses are lined up front to back.

   Provide a sectionalization switch for all OCS entering and exiting the facility, located at each roll-up door.

   In all instances, a sectionalization switch must be a manual disconnect switch with an electrically controlled magnetic contactor.

2. OCS Sectionalization Redundancy

   On each parking level, connect each OCS section of three bus parking lanes to the adjacent section of three bus parking lanes with a manual disconnect switch, so that if a sectionalizing switch fails the de-energized section can be back fed by the adjacent section that is energized.

3. Catenary Detection System

   For each sectionalization switch, provide a catenary detection light. For catenary lights provided at sectionalization switches located in each repair bay, ensure that the catenary light is clearly visible for all personnel.

Appendices (For Reference Only)

1. Transmission of Trolley Coach Overhead Wire Guidelines, dated 4/6/89
2. New Muni Overhead Trough Suspension Instructions, 8/4/94

Appendix 1

SAN FRANCISCO MUNICIPAL RAILWAY 949 PRESIDIO AVENUE, SAN FRANCISCO, CALIF. 94115 415-673-6864

FINAL

TO: Don Keener

FROM: W. G. Stead

DATE: April 6, 1989

RE: TRANSMISSION OF TROLLEY COACH OVERHEAD WIRE GUIDELINES

Enclosed is a copy of the Municipal Railway High Performance Trolley Coach Overhead Standards. These standards represent MUNI policy on those issues relative to the design of our Trolley Coach Overhead System, and should be followed by UEB designers on MUNI trolley overhead projects. If UEB believes that these standards cannot be applied to a particular circumstance, which will happen, the MUNI project coordinator should be contacted to review the circumstances.

Our staff is prepared to work with your Project Managers and Designers in implementing these guidelines. In particular, we will be providing UEB with explanatory drawings of key concepts contained in the guidelines.

These guidelines should eliminate the need for ad hoc communication between MUNI personnel and UEB designers during the design phase of these projects, and all communication will go through the UEB Project Manager to/from the MUNI Project Coordinator.

cc: J. Ivester
E. Pearson
B. Bernhard
J. Katz
M. Cohn, UEB

Enc.

OVHDGDLN

SAN FRANCISCO MUNICIPAL RAILWAY 949 PRESIDIO AVENUE, SAN FRANCISCO, CALIF. 94115 415-673-6864

TO: W. G. Stead

THRU: J. Ivester
B. Bernhard

FROM: John Katz

DATE: April 6, 1989

RE: TROLLEY COACH OVERHEAD DESIGN STANDARDS/SIGN-OFF

Enclosed is the final draft of the Trolley Coach Overhead Design Standards. These standards were drafted by Carl Natvig of the Service Planning Department, and revised by the Trolley Coach Overhead Committee. The members of the committee are Art Curtis (Deputy Superintendent Surface Transportation), Harold Conklin (Manager, Hetch Hetchy Overhead Lines Department), Peter Straus (Director of Service Planning), and Galen Sarno (Chief Electrical Engineer, MRED). All have approved this final draft for use by UEB designers when designing new or reconstructed trolley overhead projects.

These standards incorporate the decision you made, based on the recommendation of Ed Pearson, that Ohio Brass-type suspension should be employed on all tangent wire at this time.

We recommend that you approve these guidelines by signing the enclosed transmission memo to UEB.

We also want to thank Bobbie Chapman for doing such a super job of typing the many drafts of this document in both a professional and pleasant manner.

Enc.

DESGNSTD

MUNICIPAL RAILWAY
HIGH PERFORMANCE TROLLEY COACH OVERHEAD WIRE
MINIMUM STANDARDS

note: @ all cases, use template which has a better visual view of what is really happen.

I. SWITCHES

A. Scheduled Service or Pull-in Pull-out Switches

1. Mechanical Crossing.
-(10 degree switch is awaiting test results)-

   a. Leading Switches. A 10 or 15-degree mechanical crossing with stainless steel or similarly moveable runners shall be used for all regularly used leading switches.

   b. Trailing Switches. A 10 or 15-degree mechanical crossing with stainless steel or similarly durable moveable runners shall be used for all regularly used trailing switches.

   c. Preferred Direction. The runners shall be set to favor the more heavily used direction where use is 50% less and speeds below 15 mph in the less used direction.

2. Inductive Control. Inductive control shall be provided for all advance 15-degree switches. (and 10°)

3. Single-coil. A single-coil with mechanical reset shall be employed with inductive control switches.

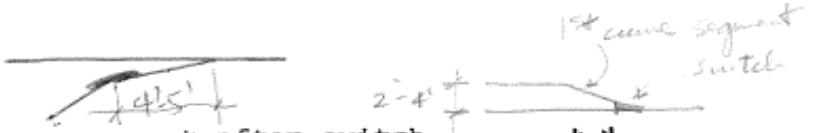
4. Advance Switch Spacings. All regularly used leading switches shall be located in advance of the intersection as follows:

   a. Leading switch to intersection nearside stop line

      (1) Left or right-hand - one or two lanes in each direction .....90-110 feet (one span)

      (2) Left-turn - three or more lanes in direction of travel .....300-400 feet (three or four spans)

      (3) Left-turn - unique condition (auto queues, etc.) .....as specified by MUNI



b. First curve segment after switch

First curve segment to advance switch
.....4-5 feet
(From the trailing tip of the switch crossing plate or insulated runner assembly to the leading tip of the curve segment.)
(To minimize forward acceleration on poles.)

c. Inductive antenna to leading switch
.....40 feet

d. Inductive antenna to indicator light
.....170 to 240 feet
(i.e. second span from switch or as specified by MUNI)

5. Indicator Lights. Indicator lights (see reference drawing) shall have the following characteristics:

a. 8 inch lenses.

b. Masked for 1-1/2 by 6 inches.

c. Double filament lamps if available.

d. Straight indication on top, diagonal turn indication below.

e. Pole-mounted wherever possible. Guy mounts may be used where there are visual obstructions or when requested by MUNI.

f. 8 inch hood.

g. Lamp voltage and series resistance designed for minimum 2-year life.

h. A micro-switch as specified by MUNI shall be used for the light switch.

6. Control Wiring.

a. Control wiring shall be suspended from a separate messenger wire of 3/16 inch diameter at least 2 feet above the contact wire level.

b. Control wire cable shall be multi-conductor, color coded, single jacket.

7. Y-Switches. A 10 or 15-degree Y-switch shall be used where the dominant direction of travel is in the turning direction.

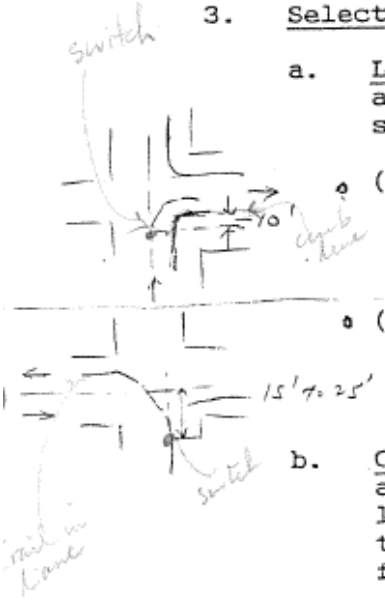
(NON REVENUE ROUTE)

B. Emergency Switches

1. 30-Degree Switches. Selectric 30-degree switches shall be employed for all right turns and for all left turns with the exception of left turns where there is more than one lane in the direction of travel. (No 23-degree switches shall be used.)

2. Advance Switches. Advance, left-hand, inductive 10 or 15-degree switches shall be employed for left turns on streets with more than one lane on the lead-in street.

3. Selectric Switch and Curve Segment Location.



a. Leading Selectric Switch. The following standards are intended to prevent the false activation of selectric switches:

(1) Right-turns. The leading switch frogs shall be located approximately 10 feet before the curb line of the trail-in street for right turns.

(2) Left-turns. The leading switch frogs shall be located approximately 15 to 25 feet before the traffic dividing line of the trail-in street for left turns.

b. Curve Segment. The first curve segment shall have a spacing of 0-5 feet from the trailing tip of the leading selectric switch to the leading tip of the curve segment for right turns and 0-10 feet for left turns.

c. Trailing Switch. The trailing switch shall be located over the center-rear of turning coaches wherever possible.

d. Selectric Switch Alignment. Selectric switch layouts need not be aligned over the inside rear corner of turning coaches.

8. Combination Curve-Crossings. No combination curve-crossings shall be used unless specifically approved by MUNI. Additional curve segments shall be used to avoid use of combination curve-crossings.

9. Tangent Clamps. A maximum of 1.25 degrees per foot of curve runner or per HS-type clamp shall be used.

10. Curve Alignment. All curve segments shall be located over the inside rear corner of the turning coach as determined by field tests. The location of coach stops should be considered in determining the typical path of a turning coach.

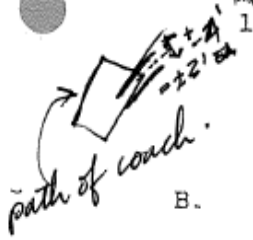


a. Right Turns. The contact wire axis shall be 2-3 feet from the curb at the apex of right turns; and the first and last curve segments shall be 8 to 11 feet from the curb unless specified otherwise by MUNI.



b. Left Turns. As a general rule, the left turn wire should pass over the two intersecting points of the stop lines and the traffic dividing lines in the path of the turning coach (on two-way, one lane per direction streets).

11. Guying in Turns. Curve segments shall be located in such manner axially and laterally within plus or minus ± 2 feet of the path of the inner rear corner of the turning coach to minimize the amount of guying required to support the curve segments.



B. Emergency Routes

1. Curvature. A maximum of 30 degrees per curve segment shall be used.

2. Long Radius Turns. For turns with a radius of 50 feet or greater, additional curve segments shall be used as needed.

3. Combination Curve-Crossings. No combination curve-crossings shall be used unless specifically approved by MUNI. Additional curve segments shall be used to avoid use of combination curve-crossings.

4. Curve Alignment. (The same as for regularly used turns with the exception of selectric switch turn lay-outs.)

III. SECTION INSULATORS
(No. Bos, Breakers, Insulated Runners)

A. Far-Side Crossings. Insulated runners shall be in the far-side crossing for each direction of coach travel at intersections.

B. Section Insulators. Insulated runners between circuits shall be located in non-accelerating locations if a far-side crossing is not available.

C. Switches. Insulated runners in switches shall be in the turn-out direction in leading and trailing switches.

D. Exceptions. Exceptions to the location of insulated runners shall be employed only when specified by MUNI. Possible exceptions may be as follows:

1. Some crossings in left-turns.

2. Some crossing locations with steep up-hill grades on narrow streets with heavy traffic.

3. Some switches where the turning direction is the dominant direction of travel.

4. Emergency routes will generally have all the insulated runners when crossing revenue routes.

E. Magnetic Blowout. Magnetic blowouts of a type approved by MUNI (a permanent magnet type is now used) shall be used on the first insulated runner of switches, crossings, and section insulators.

IV. TANGENT WIRE

A. Tangent Wire Suspension. OB type or equivalent suspension system will be used on all tangent runs.

B. Concave and Convex Vertical Curves. All vertical curves shall be designed for 25 mph or the typical speed of traffic, whichever is greater, with a maximum of 1.25 degrees of curvature per foot of runner. (A lower design speed may be used where coaches turn sharply at the vertical curve.) Vertically curved K & M clamp-type curve runners (with rigid suspension), K & M copper tubing with passage clamps, or equivalent clamp-type runner shall be used.

C. Single-Track. Bracket arms or davit poles with flexible suspension shall be used for single-track runs except: concave vertical curves; where distances between the curb and wire locations are more than 18 feet; or where trolley poles are already in place.

D. Tangent Wire Axis. The following wire axis to curb distances shall be used:

1. One or two lanes per direction.

   a. For streets narrower than 48 feet:
      -14 feet OR center of traffic lane - whichever is greater.
      Center of trolley wires to curb line

   b. For streets wider than 48 feet:
      -16 feet OR center of traffic lane - whichever is greater.

2. Three lanes per direction.
   .....center of traffic lane plus 3 feet
   -18 feet maximum

3. Three lanes per direction with loading bulbs
   -20 feet
   (only where all stops have bulbs)

* Bridges - 45° - 18' clearance | according to DPT/DPW? criteria?
60° - 19' clearance.

VII. INTERSECTIONS

A. Network Guys. A maximum of three guys shall be attached to bull rings on the high tension side of curve segment support networks. A greater effort to network and reduce guys should be employed in residential areas than in industrial areas.

B. Brail Wires. Brail wires shall be used primarily on the inside of turn layouts and be located a minimum of 3 feet from parallel contact wires.

C. Constant-Carbon-Contact. Constant-carbon-contact for all crossing plates and switches shall be used. Fabricated OB deep-runner crossing plates shall not be used.

D. Design Life. Adequate minimum runner depth in flangeways of crossing plates and switch plates shall be employed to allow for a clearance of 1-3/8 inches after 2 million carbon trolley shoe passages (with a pressure of 28 pounds). Flangeways shall be configured to allow easy passage of bent poles.

E. Pole Location. Generally, trolley support poles should be located to minimize the total length of guy wires. Generally, no more than 2 poles per corner should be used. Generally, advance switches should be located one span from the adjacent intersection, the main tension guy (head guy) attached to the switch should be attached to a pole or poles one span from the switch.

F. Eyebolts. Eyebolts shall be employed wherever practical to install and if buildings of suitable strength are available. (City policy requires that all new buildings of adequate strength along existing or proposed trolley coach routes must provide eyebolts.)

G. Traffic Signal Pre-empts. Traffic signal pre-empts shall be provided at signalized intersections as specified by MUNI (in consultation with other City departments). New signalized intersections shall be provided as specified by MUNI (in consultation with other City departments).

9/18/85
Revised 11/28/86
Revised 5/17/88
Revised 9/15/88
Revised 11/2/88
Revised 3/20/89
Revised 4/5/89

OVHDSTDS

Appendix 2

POWER, SIGNALS & ELECTRONICS, 2502 ALAMEDA ST., SAN FRANCISCO, CA 94103

August 4, 1994

TO : John Katz

FROM : Vic Lamevse VL

SUBJECT : NEW MUNI OVERHEAD TROUGH SUSPENSION INSTRUCTIONS

Attached is the new instruction on our overhead trough suspension. Also included is a drawing detailing the suspension.

If you have any comments, please let me know at 554-9211.

cc: Rav Favetti
Drew Howard
William Wong

PUBLIC UTILITIES COMMISSION CITY AND COUNTY OF SAN FRANCISCO

POWER, SIGNALS & ELECTRONICS, 2502 ALAMEDA ST., SAN FRANCISCO, CA 94103

MUNI OVERHEAD TROUGH SUSPENSION INSTRUCTION

The trough for Muni Overhead suspension should be made of hardwood and it should be waterproof for outside use. But if it has to be installed inside a building or in an enclosure, then the wood need not be necessarily be waterproof. All troughs should be designed in a way that will enable the crew to reach the top above the trough during maintenance so that you can repair insulators that support the overhead in the trough.

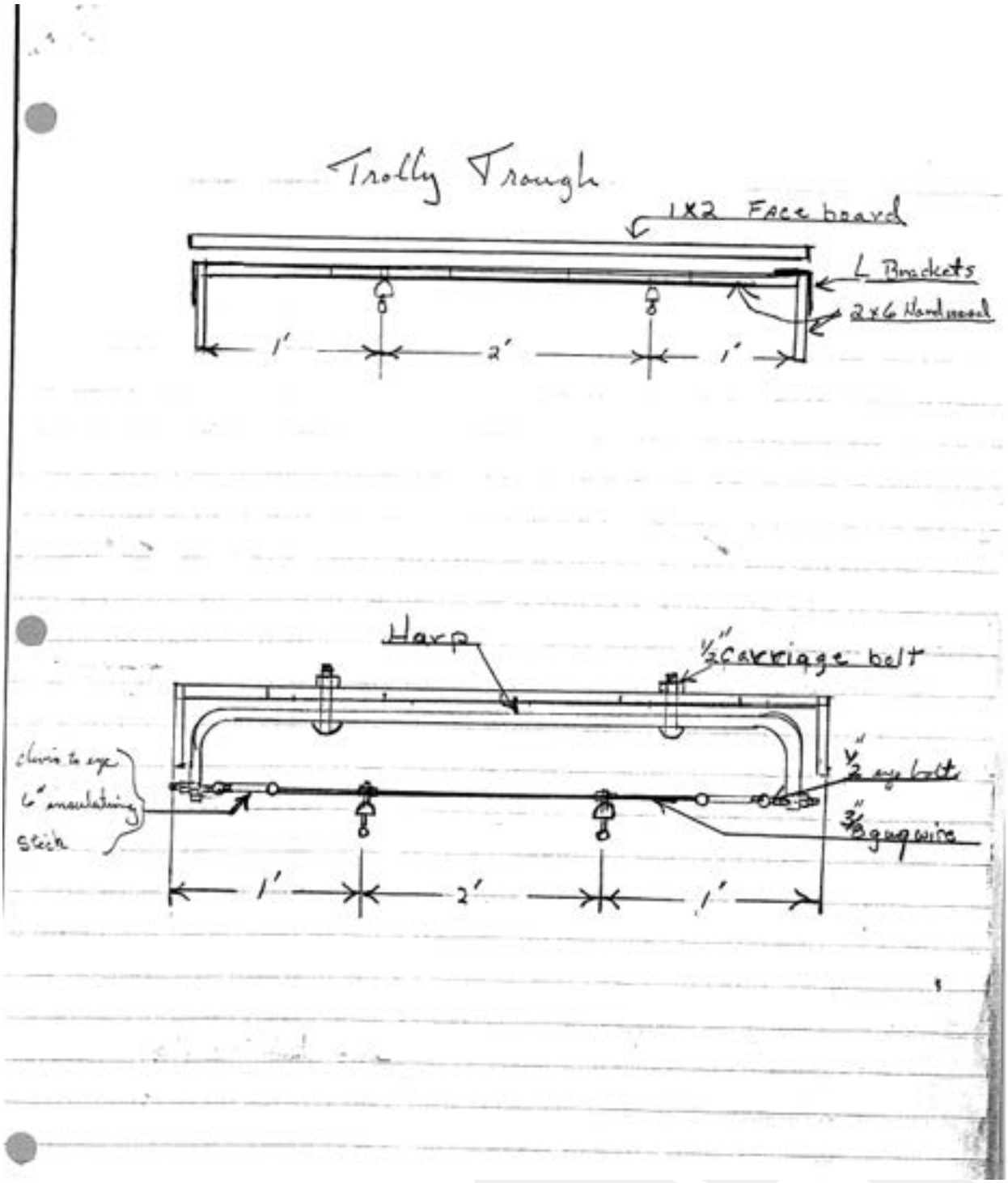
The wood should run parallel with the wire and be made of 2" x 6" as well as the kickboard on the sides. On each side of the outside wire, should have a 1 foot clearance between the wire and kickboard. A 1" x 2" board should be installed on the face of the trough to prevent the wood from splitting from poles hitting it. An "L" bracket should be installed to strengthen the kickboard from pulling apart. The trough should extend 2 feet passed the ends of the structure so we can mount a harp if needed.

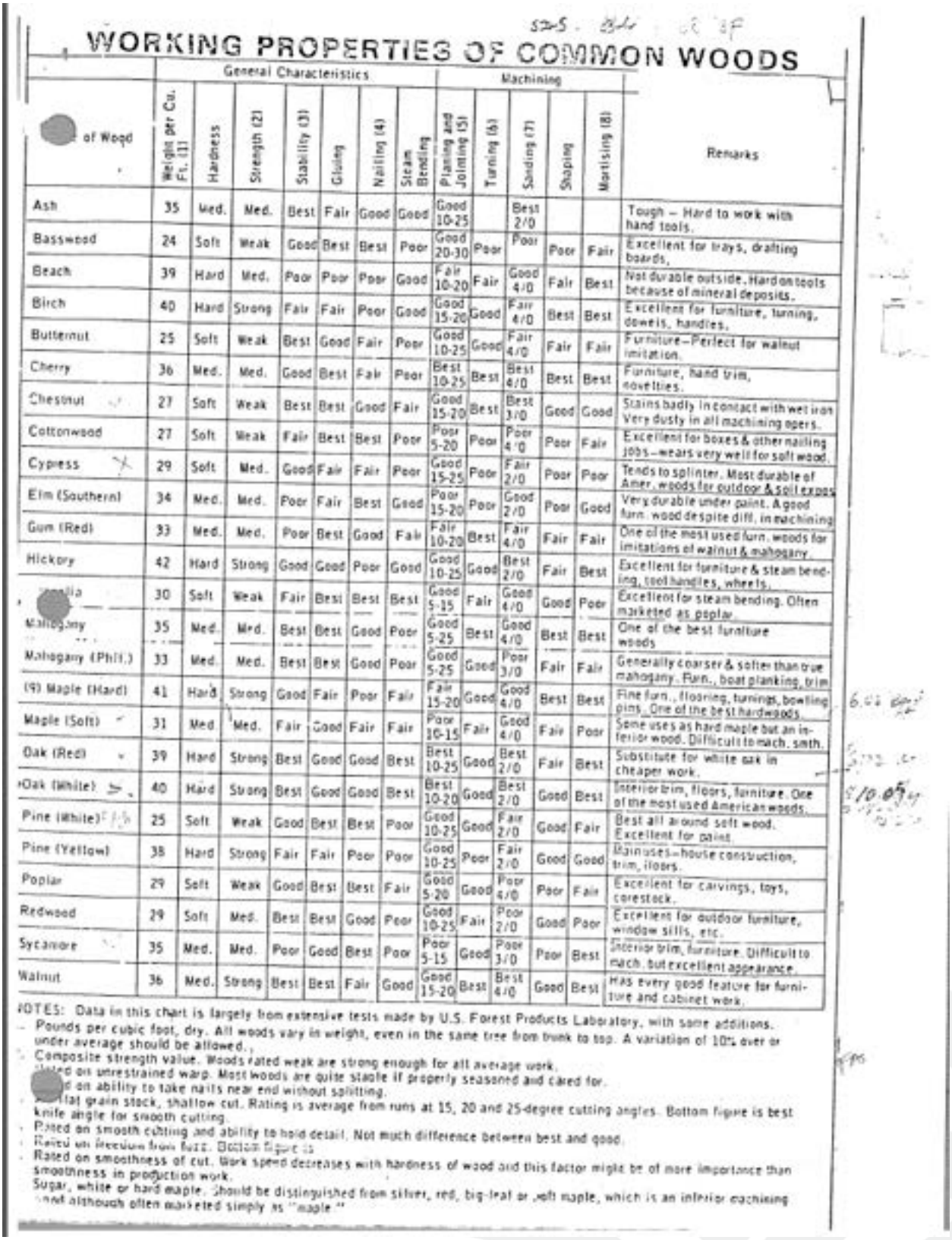
Harps should be installed where the nearest tangent support wire is more than 60 feet from either end of the trough. Harps are made of steel channel iron 6" x 1" and have 2 clevis to eye 6" stick, with threaded eye bolt to adjust tension on harp. Harps should be 4 feet long (see attached drawing on Harp).

Splice joints should be made of channel iron 2" x 6" to give support to splices in trough so it would not sag.

Also, lags and wood screws should not be used because they will only pull apart. When putting together splices and attachments always use nuts, bolts, lock washers and flat washers.

USE 1" x ½" CARRIAGE BOLT


Trolly Trough
1x2 Face board
L Brackets
2x6 Hardwood
1'
2'
1'
Harp
½" Carriage bolt
clevis to eye
6" insulating
stitch
½" eye bolt
⅜" guy wire
1'
2'
1'



WORKING PROPERTIES OF COMMON WOODS

of Wood	General Characteristics							Machining					Remarks
	Weight per Cu. Ft. (1)	Hardness	Strength (2)	Stability (3)	Gluing	Nailing (4)	Steam Bending	Planing and Jointing (5)	Turning (6)	Sanding (7)	Shaping	Mortising (8)	
Ash	35	Med.	Med.	Best	Fair	Good	Good	Good 10-25		Best 2/0			Tough – Hard to work with hand tools.
Basswood	24	Soft	Weak	Good	Best	Best	Poor	Good 20-30	Poor	Poor	Poor	Fair	Excellent for trays, drafting boards,
Beach	39	Hard	Med.	Poor	Poor	Poor	Good	Fair 10-20	Fair	Good 4/0	Fair	Best	Not durable outside. Hard on tools because of mineral deposits.
Birch	40	Hard	Strong	Fair	Fair	Poor	Good	Good 15-20	Good	Fair 4/0	Best	Best	Excellent for furniture, turning, dowels, handles.
Butternut	25	Soft	Weak	Best	Good	Fair	Poor	Good 10-25	Good	Fair 4/0	Fair	Fair	Furniture–Perfect for walnut imitation.
Cherry	36	Med.	Med.	Good	Best	Fair	Poor	Best 10-25	Best	Best 4/0	Best	Best	Furniture, hand trim, novelties.
Chestnut	27	Soft	Weak	Best	Best	Good	Fair	Good 15-20	Best	Best 3/0	Good	Good	Stains badly in contact with wet iron Very dusty in all machining opers.
Cottonwood	27	Soft	Weak	Fair	Best	Best	Poor	Poor 5-20	Poor	Poor 4/0	Poor	Fair	Excellent for boxes & other nailing jobs–wears very well for soft wood.
Cypress	29	Soft	Med.	Good	Fair	Fair	Poor	Good 15-25	Poor	Fair 2/0	Poor	Poor	Tends to splinter. Most durable of Amer. woods for outdoor & soil expos
Elm (Southern)	34	Med.	Med.	Poor	Fair	Best	Good	Poor 15-20	Poor	Good 2/0	Poor	Good	Very durable under paint. A good furn. wood despite diff. in machining
Gum (Red)	33	Med.	Med.	Poor	Best	Good	Fair	Fair 10-20	Best	Fair 4/0	Fair	Fair	One of the most used furn. woods for imitations of walnut & mahogany.
Hickory	42	Hard	Strong	Good	Good	Poor	Good	Good 10-25	Good	Best 2/0	Fair	Best	Excellent for furniture & steam bending, tool handles, wheels.
[illegible]	30	Soft	Weak	Fair	Best	Best	Best	Good 5-15	Fair	Good 4/0	Good	Poor	Excellent for steam bending. Often marketed as poplar.
Mahogany	35	Med.	Med.	Best	Best	Good	Poor	Good 5-25	Best	Good 4/0	Best	Best	One of the best furniture woods
Mahogany (Phil.)	33	Med.	Med.	Best	Best	Good	Poor	Good 5-25	Good	Poor 3/0	Fair	Fair	Generally coarser & softer than true mahogany. Furn., boat planking, trim
(9) Maple (Hard)	41	Hard	Strong	Good	Fair	Poor	Fair	Fair 15-20	Good	Good 4/0	Best	Best	Fine furn., flooring, turnings, bowling pins. One of the best hardwoods.
Maple (Soft)	31	Med	Med.	Fair	Good	Fair	Fair	Poor 10-15	Fair	Good 4/0	Fair	Poor	Some uses as hard maple but an inferior wood. Difficult to mach. smth.
Oak (Red)	39	Hard	Strong	Best	Good	Good	Best	Best 10-25	Good	Best 2/0	Fair	Best	Substitute for white oak in cheaper work.
Oak (White)	40	Hard	Strong	Best	Good	Good	Best	Best 10-20	Good	Best 2/0	Good	Best	Interior trim, floors, furniture. One of the most used American woods.
Pine (White)	25	Soft	Weak	Good	Best	Best	Poor	Good 10-25	Good	Fair 2/0	Good	Fair	Best all around soft wood. Excellent for paint.
Pine (Yellow)	38	Hard	Strong	Fair	Fair	Poor	Poor	Good 10-25	Poor	Fair 2/0	Good	Good	Mainuses–house construction, trim, floors.
Poplar	29	Soft	Weak	Good	Best	Best	Fair	Good 5-20	Good	Poor 4/0	Poor	Fair	Excellent for carvings, toys, corestock.
Redwood	29	Soft	Med.	Best	Best	Good	Poor	Good 10-25	Fair	Poor 2/0	Good	Poor	Excellent for outdoor furniture, window sills, etc.
Sycamore	35	Med.	Med.	Poor	Good	Best	Poor	Poor 5-15	Good	Poor 3/0	Poor	Best	Interior trim, furniture. Difficult to mach. but excellent appearance.
Walnut	36	Med.	Strong	Best	Best	Fair	Good	Good 15-20	Best	Best 4/0	Good	Best	Has every good feature for furniture and cabinet work.

NOTES: Data in this chart is largely from extensive tests made by U.S. Forest Products Laboratory, with some additions.
- Pounds per cubic foot, dry. All woods vary in weight, even in the same tree from trunk to top. A variation of 10% over or under average should be allowed.
- Composite strength value. Woods rated weak are strong enough for all average work.
- [illegible]ted on unrestrained warp. Most woods are quite stable if properly seasoned and cared for.
- [illegible]d on ability to take nails near end without splitting.
- [illegible]flat grain stock, shallow cut. Rating is average from runs at 15, 20 and 25-degree cutting angles. Bottom figure is best knife angle for smooth cutting.
- Rated on smooth cutting and ability to hold detail. Not much difference between best and good.
- Rated on freedom from fuzz. Bottom figure is
- Rated on smoothness of cut. Work speed decreases with hardness of wood and this factor might be of more importance than smoothness in production work.

Sugar, white or hard maple. Should be distinguished from silver, red, big-leaf or soft maple, which is an inferior machining wood although often marketed simply as "maple."

Please file with your Trolley overhead Standards

SAN FRANCISCO MUNICIPAL RAILWAY 949 PRESIDIO AVENUE, SAN FRANCISCO, CALIF. 94115 415-673-6864

TO: DICK BRANDT

FROM: JOHNNY B. STEIN Johnny B Stein

DATE: JANUARY 31, 1994

RE: AMENDMENTS TO TROLLEY OVERHEAD DESIGN STANDARDS

The enclosed document is a set of amendments to the High Performance Trolley Overhead Standards originally transmitted to you in 1989. While the original standards have been extremely helpful in designing improved and consistent overhead projects, they were incomplete in some areas and need revisions in others.

Therefore the purpose of the enclosed amendments is to set standards in areas that were not covered by the original guidelines (tensionning and support), or to make changes in other areas (guy wire, control wiring).

Since these standards were worked out in meetings between our overhead committee and your overhead design staff they should be easy to understand and implement. In fact some of these concepts are being incorporated on a project by project basis but have not yet been codified as a set of amendments to the standards.

Please call John Katz if you have any questions about the content of these standards. Thank you.

cc: Phil Chin
Phil Adams
Kathy Gilbert
John Katz
Hoy Wong
Vic Lameyse
Peter Straus
Art Curtis
Carl Natvig

VIII. TENSIONNING AND SUPPORT

A. Head Guy. Only the head guy wire should be held with great tension.

B. Side Guys.

1. All side guys should be attached lightly to special work, usually about 200-300 lbs. tension.

2. All side guy wires should be hung from the highest point on the pole so they will not interfere with other guy wires or contact wire.

C. Tangent Span Tension.

1. Tangent spans are installed to support the trolley wire weight only, except where there are significant grade slopes.

2. In most cases tension on tangent spans should be not more than 500 lbs.

D. Curve Segment Guy Strands. Where possible each curve segment guy strand should be supported independently of the other curve segments. Multiple guying to several segments in the opposing corner and/or special work should be avoided. The exception to this is where parallel turns can be supported by one guy wire.

E. Final Contractor Adjustment. After initial installation but prior to final acceptance of the job the contractor should adjust pole band heights of guy wire in order to avoid guy wire interference coming within one foot of contact wire. This can be done by having the contractor leave a 2' tail on the end of the guy wire at the pole. The remaining tail should be cut off at the completion of the final adjustment.

IX. GUY WIRE SIZE AND TYPE

A. Type. Use 3/8" utilities guy wire rated at least utilities grade 4. Do not use fiber guys. (replaces section VI-E)

B. Securing Guy Wire. Preforms and dead end automatic will be used to secure guy wire. Do not use crimp on sleeves for dead ending.

C. Do Not Use Thimbles. Thimbles for securing guy wire are not used and should be eliminated from all future material lists.

trolle can do by spec.

X. CONTROL CABLE AND WIRING
(Replaces existing section 1-A-6.)

A. Type. Multiple Control Cable should be seven (7), #14 wire single jacket with messenger.

B. Messenger Wire. Messenger wire should be 1/4 inch diameter, suspended at least 2 feet above contact wire.

C. Color Code. Muni will provide the color coding for control wiring for switches and multiple control cable. The contractor should not proceed with installation unless the wire colors are consistent with Muni color coding.

D. All control wire should be installed with fuse protection.

OVHDGID2

PUBLIC UTILITIES COMMISSION
CITY AND COUNTY OF SAN FRANCISCO

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RICHARD E. BRANDT, MANAGER

MUNICIPAL RAILWAY
WATER DEPARTMENT
HETCH HETCHY
WATER AND POWER

February 22, 1994

MEMORANDUM

TO: Johnny B. Stein

FROM: Richard E. Brandt

SUBJECT: **Trolley Overhead Design Standards**

Thank you for your update of the Trolley Overhead Design Standards of January 31, 1994.

This update formalizes the current design practice being used as agreed by the Overhead Committee.

It should be remembered that these are general guidelines which sometimes have to be varied to meet site specific conditions.

For example, MUNI has advised as that esthetics and minimizing the impact on views are important considerations in the design of the overhead along the Embarcadero. If we were to follow VIII D literally and not use multiple guying, the additional poles and individual guy wires would block views and result in an unesthetic design.

bcc: M File
W. Neilson
W. Wong
Overhead Section

ja:STANDRDS.WN

1155 MARKET STREET, SAN FRANCISCO, CA 94103 • (415) 554-0700

SECTION

OVERHEAD WIRE SYSTEM

1. GENERAL:

The overhead trolley wires will provide electrical power to streetcars at 615 VDC. The PCC and other historic streetcars will be equipped with trolley poles to take power from overhead trolley wires. Contact wire will be installed over each track by means of carbon wipers.

Current will be returned through the rails in the street.

2. DESIGN CRITERIA:

a. CONTACT WIRE:

The contact wire will be supported by span wires. The following charateristics will be used:

Material	Alloy 80 Bronze
Type	Round, grooved ASTM B9-47
Size	# 4/0 AWG
Height	18'-6" to 19'-0"
Supports	~~110 ft~~ 100 ft
Design Voltage	615 VDC
Design Tension	3,000 lbs

b. SPECIAL TRACKWORK & CURVE CONSTRUCTION;

At rail line crossovers and turnouts, the overhead system will be designed to maintain contact between the wire and the PCC trolley shoe.

Overhead system construction at the curves will require the ~~contract~~ contact wire to be offset ~~(pulled off)~~ to maintain continuity of contact between the cars and the contact wire. Each curve radius will require evaluation of the following parameters to determine the pull off spacing. Pull-off will be spaced per drawing K-41 "Location of Contact Wire Above Track For Pole And Pantograph Operation"

a) minimum curve radius
b) radius of spiral curve entering
c) radius of spiral curve leaving
d) curve super elevation

c. SWITCHES:

Leading and trailing switches shall be 15° mechanical crossings with stainless steel or similarly durable moveable runners used for all regularly used switches.

d. TURNS:

Curvature: Curve segment shall not exceed 3.125° per foot of runner on 90° turns.

V1-20

e. Poles: Number of poles will be minimized by combining trolley, streetlight and traffic signal poles where feasible. Poles will be ATEA 700 series.

DESIGN CODES AND GUIDELINES:

Design codes and guidelines applicable to this project are as follows:

Trolley Overhead

Muni High Performance Trolley Coach Overhead Wire Minimum Standards. Revised 03/20/89.

General Order No. 95 of the Public Utilities Commission of the State of California, March 1981.

Design standards and criteria developed on previous trolley overhead projects.

Safety - Cal/OSHA

Pole - American Transit Engineering Association (ATEA, Section D15-57). Revised and approved as standard 1957.

Foundation and Concrete

City and County of San Francisco DPW Standard Specification (Section 800.11), July 1986.

American Concrete Institute (ACI 318-83) November 1983.

Others (Latest Edition)

Public Works Code Electrical Code, Traffic Code and other applicable ordinances of the City and County of San Francisco. July 1986

American National Standards Institute (ANSI)

American Society for Testing and Materials (ASTM)

Electric Industries Association (EIA)

Insulated Cable Engineers Association (ICEA)

Institute of Electrical and Electronic Engineers (IEEE)

National Electrical Manufacturers Association (NEMA)

Regulations for Working in San Francisco Streets, Department of Public Works, City and County of San Francisco. July 1986

Underwriter Laboratories, Inc. (UL)

General Order 128 of the Public Utlities Commission of the State of California.

APPENDIX C: SFPUC APPLICATION FOR ELECTRICAL SERVICE

GENERAL NOTES

- Disregard references to Housing and Commercial Component, as they are no longer part of the project.

Potrero Yard Modernization Project

2500 Mariposa Street

SF Public Utilities Commission (PUC)

Wholesale Distribution Tariff (WDT) Application for Power Service

Enclosed Application Materials:

1. Feeder 1 Application (Industrial Load) 3
2. Feeder 2 Application (Mixed Use Load) 15
3. Single Line Diagram Feeder 1 27
4. Single Line Diagram Feeder 2 29
5. Floor Plan 31
6. Site Survey 33
7. Electrical Plans 35

1. FEEDER 1 APPLICATION (INDUSTRIAL LOAD)

This application covers the bus facility load and a portion of the battery electric bus charging load. NFPA70 Article 625 Sec42 states automatic load management system can be used for feeder rating. Based on modeling, estimated peak load with load management is 9,941kW. Designs include automatic load management and intelligent switchgear that can function as a backup to the load management limiting peak demand to 9,941kW. Second service requested for remainder of chargers & site load.

The total peak BEB charging load is ~12.7MW, split between two feeders. Feeder 1 is all BEB and anticipated to peak around 9.9 MW. Feeder 2 is mixed between BEB charging, residential, bus operations, and commercial uses. This totals 3MW peak for residential, 5MW for commercial/bus yard ops, and 2.8 MW for BEB charging. The connected load is higher than the peak load for BEBs because automatic load management systems should be used per NEC code Article 625 section 42.

Hetch Hetchy POWER — APPLICATION FOR ELECTRIC SERVICE

Refer to the A . lication Chec list to com lete this form Submit se arate forms for tem orar construction o er and ermanent o er

r e t n rmati n

Pro ect ame
Potrero ard Moderni ation Pro ect

Address
2500 Mari osa St S CA 94110

earest cross street
r ant Street

Cit
San Francisco

Su er isorial istrict
10

Pro ect e
New Service

Load e
- ○ Residential
- ○ Light Commercial
- ○ Commercial industrial secondar
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06 01 2023

Construction Start ate

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	ours a	a s ee	Months ear	usiness ours
Summer erating ours	24	7	12	0:00 to 24:00

	ours a	a s ee	Months ear	usiness ours
inter erating ours	24	7	12	0:00 to 24:00

escri tion

rief descri tion of the ro ect and electric load t e belo Please include the su l details such as irrigation um or tem orar construction o er for ne affordable housing de elo ment

he Potrero ard Moderni ation Pro ect ill demolish e isting uses and construct a ne 3 le el bus maintenance and storage facilit e ui ed ith batter electric bus infrastructure u to 575 housing units and ground floor retail as an integrated mi ed use de elo ment

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- (●) ner de elo er
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- ( ) eneral contractor
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Com an Agenc ame

San rancisco Public or s

Contact ame itle

Rachel Alonso Pro ect Manager

In oice or: mail

- [ ] Construction Charges
- [ ] lectricit

rachel alonso sfd org

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San rancisco CA 94103

a time Phone

628 271 2838

Cell Phone

805 452 3125

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Contact ame itle
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- [x] Construction Charges
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usiness Mailing Address
1 South an ess 8th floor
San rancisco CA 94103

a time Phone
415 646 2715

Cell Phone

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Com an Agenc ame

Contact ame itle

In oice or:
- [ ] Construction Charges
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mail

usiness Mailing Address

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Cell Phone

e tri ad n rmati n

Com lete one Load Summar for each Ser ice Point Add additional ser ice oints to otes

Ser ice ui ment Rating am s
600

Meter isconnect Rating am s
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oltage
- ○ 120 208 olt 3 ire 1
- ○ 120 240 olt 3 ire 1
- ○ 208 120 olt 4 ire 3
- ○ 240 120 olt 4 ire 3
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Ser ice Point escri tion Location

	uantit	Load ach A	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
i tin	A	A		0
e e ta e	A	A		0
lectric ater eating			0	0
lectric eating			0	0
Commercial Coo ing			0	0
Refrigeration			0	0
Resistance elders			0	0
Arc elders Largest nit			0	0
Charging Station			0	0
ther 1 escribe			0	0
ther 2 escribe			0	0
otal A	A	A	0	0

ther 1 escri tion

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Sin e a e r e er

ote: h ill be con erted to A at 0 746

	uantit	Load ach h	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
Air Conditioning			0	0 000
le ators			0	0 000
ire Pum			0	0 000

	uantit	Load ach h	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
ther escribe			0	0 000
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	Largest Motor:	Motors 40 h abo e:
e		
Rated h		
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Ser ice Point escri tion Location

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	uantit	Load ach A	3 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
i tin				0
e e ta e				0
ater eating			0	0
lectric eating			0	0
Commercial Coo ing			0	0
Refrigeration			0	0
Resistance elders			0	0
Arc elders Largest nit			0	0
Charging Station	90	205	18450	6457 5
ther 1 escribe			0	0
ther 2 escribe			0	0
otal A	A	A	18450	6457 5

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	uantit	Load ach h	3 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
Air Conditioning			0	0 000
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ther escribe			0	0 000
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	Largest Motor:	Motors 40 h abo e:
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hen ill the load reach the belo ercentages of total forecast

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25 of lectrical Load	104
50 of lectrical Load	104
75 of lectrical Load	234
100 of lectrical Load	234

Street Side a m r ement

oes the ro ect include an street side al im ro ement along ublic streets

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If es contact slengineering sf ater org .

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his A lication form is for electric ser ice onl he installation and interconnection of self generation e ui ment including hoto oltaic s stems re uires the submission of an interconnection a lication and S P C a ro al Please contact hh o er sf ater org for more assistance

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Site an

ra n to scale indicating ro osed locations of electric metering including an s rin ler controller meter s itchgear and if a licable transformers Sho easements rights of a ro ert lines grading roads road names side al s dri e a s Indicate location of fire h drants and other structures drains ater se er storm and ro osed future im ro ements **inimum d i in ude re e ant dire ti na a e e end and nte t in rmati n** load at least one file

Potrero ard 2500 Mari osa floor lan df ☐ load a different file

Potrero ard 2500 Mari osa site sur e df ☐ load a different file

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lectrical dra ings and schedules ith com lete brea do n of e ui ment including electric s itchboard dra ings Minimum 300 d i include rele ant directional scale legend and conte t information load at least one file

Potrero ard 2500 Mari osa electrical dra ings df ☐ load a different file

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D Sin e ine Dia ram

Single line diagram sho ing the meter customer main ser ice anel and its main s itch si e transformers if an oles aults and or unction bo es if an Minimum 300 d i include rele ant directional scale legend and conte t information load at least one file

Potrero ard 2500 Mari osa single line diagram feeder 1 df ☐ load a different file

Choose File o file chosen

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Street i t and ra i Si na an i a i a e

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Choose File o file chosen

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De artment ui din n e ti n ermit i a i a e

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e ue t r nmetered Ser i e i a i a e

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Additional information such as e isting acti e A lication

his a lication co ers the bus facilit load and a ortion of the batter electric bus charging load PA70 Article 625 Sec42 states automatic load management s stem can be used for feeder rating ased on modeling estimated ea load ith load management is 9 941 esigns include automatic load management and intelligent s itchgear that can function as a bac u to the load management limiting ea demand to 9 941 Second ser ice re uested for remainder of chargers

n ed ement

he a licant hereb a lies to the S P C for electric ser ice A licant ac no ledges that this A lication is sub ect to the S P C s *Rules and Regulations Governing Electric Service* that can be found at htt s: sf ater org lectricRules

clic ing Submit belo I agree that the information contained in this A lication is correct to the best of m no ledge I understand that an changes made to the abo e information or attached documents ma increase the time and costs re uired for S P C to ro ide electric ser ice at the re uested ser ice address and that I ill be res onsible for an increased costs resulting from such changes

I understand that ser ice ill be engineered and installed based in art u on the information ro ided here he S P C ill ro ide the A licant ith a ser ice agreement estimating the A licant s cost res onsibilit Sub ect to entering into a ser ice agreement ith the S P C I agree to a S P C for all or S P C erforms and all costs S P C incurs to ro ide the ser ice re uested b this A lication S P C ma cancel this ro ect if I do not roceed ith the ro ect and it becomes inacti e for 12 months If the ro ect is cancelled b either art I ill a S P C for all such or and costs incurred b S P C rior to the cancellation

☑ I ha e read and agree to the terms abo e

Contact ame itle

Rachel Alonso Pro ect Manager

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06 01 2023

Stage

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Reser e Ca acit
6457 5

Summer Demand

	Residential	Light Commercial	Commercial	Industrial
1:00 AM				5628 650570865
2:00 AM				5538 270832605
3:00 AM				5457 51133578
4:00 AM				5439 261181567
5:00 AM				5518 666695622
6:00 AM				5761 193444685
7:00 AM				6066 573055987
8:00 AM				6145 988624369
9:00 AM				6245 81212059
10:00 AM				6295 661947732
11:00 AM				6382 826916479
12:00 PM				6419 647878525
1:00 PM				6430 513448834
2:00 PM				6427 627017367
3:00 PM				6457 043674304
4:00 PM				6420 240270202
5:00 PM				6457 5
6:00 PM				6415 097665724
7:00 PM				6375 245921257
8:00 PM				6297 435177232
9:00 PM				6136 528503105
10:00 PM				6002 52988923
11:00 PM				5843 304354195
12:00 AM				5695 510156875

Winter Demand

	Residential	Light Commercial	Commercial	Industrial
1:00 AM				5457 51133578
2:00 AM				5439 261181567
3:00 AM				5518 666695622
4:00 AM				5761 193444685
5:00 AM				6066 573055987
6:00 AM				6145 988624369
7:00 AM				6245 81212059

	Residential	Light Commercial	Commercial	Industrial
8:00 AM				6295 661947732
9:00 AM				6382 826916479
10:00 AM				6419 647878525
11:00 AM				6430 513448834
12:00 PM				6427 627017367
1:00 PM				6457 043674304
2:00 PM				6420 240270202
3:00 PM				6457 5
4:00 PM				6415 097665724
5:00 PM				6375 245921257
6:00 PM				6297 435177232
7:00 PM				6136 528503105
8:00 PM				6002 52988923
9:00 PM				5843 304354195
10:00 PM				5695 510156875
11:00 PM				5628 650570865
12:00 AM				5538 270832605

Submit

Contact Information

2. FEEDER 2 APPLICATION (MIXED USE LOAD)

This application covers housing and retail loads and a portion of the battery electric bus charging load. NFPA70 Article 625 Sec42 states automatic load management system can be used for feeder rating. Based on modeling, estimated peak load with load management is 2.8MW BEB chargers. New service estimate 5MW commercial, 3MW residential and 2.8MW BEB Chargers. Designs have automatic load management & intelligent switchgear that function as backup limiting peak demand to 10.8MW.

The total peak BEB charging load is ~12.7MW, split between two feeders. Feeder 1 is all BEB and anticipated to peak around 9.9 MW. Feeder 2 is mixed between BEB charging, residential, bus operations, and commercial uses. This totals 3MW peak for residential, 5MW for commercial/bus yard ops, and 2.8 MW for BEB charging. The connected load is higher than the peak load for BEBs because automatic load management systems should be used per NEC code Article 625 section 42.

Hetch Hetchy POWER APPLICATION FOR ELECTRIC SERVICE

Refer to the A . lication Chec list to com lete this form Submit se arate forms for tem orar construction o er and ermanent o er

r e t n rmati n

Pro ect ame
Potrero ard Moderni ation Pro ect

Address
2500 Mari osa Street S CA 94110

earest cross street
r ant Street

Cit
San Francisco

Su er isorial istrict
10

Pro ect e
New Service

Load e
- ○ Residential
- ○ Light Commercial
- ○ Commercial industrial secondar
- ○ Industrial industrial rimar
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	ours a	a s ee	Months ear	usiness ours
Summer erating ours	24	7	12	0:00 to 24:00

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inter erating ours	24	7	12	0:00 to 24:00

escri tion

rief descri tion of the ro ect and electric load t e belo Please include the su l details such as irrigation um or tem orar construction o er for ne affordable housing de elo ment

he Potrero ard Moderni ation Pro ect ill demolish e isting uses and construct a ne 3 le el bus maintenance and storage facilit e ui ed ith batter electric bus infrastructure u to 575 housing units and ground floor retail as an integrated mi ed use de elo ment

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Com an Agenc ame

San rancisco Public or s

Contact ame itle

Rachel Alonso Pro ect Manager

In oice or: mail

- [ ] Construction Charges
- [ ] lectricit

rachel alonso sfd org

usiness Mailing Address

49 South an ess 10th floor
San rancisco CA 94103

a time Phone

628 271 2838

Cell Phone

805 452 3125

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1 South an ess 8th floor
San rancisco CA 94103

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e tri ad n rmati n

Com lete one Load Summar for each Ser ice Point Add additional ser ice oints to otes

Ser ice ui ment Rating am s
600

Meter isconnect Rating am s
600

oltage
- ○ 120 208 olt 3 ire 1
- ○ 120 240 olt 3 ire 1
- ○ 208 120 olt 4 ire 3
- ○ 240 120 olt 4 ire 3
- ○ 480 277 olt 4 ire 3
- ◉ Primar oltage or e ual 2 400 olts
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Ser ice Point escri tion Location

	uantit	Load ach A	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
i tin	A	A		0
e e ta e	A	A		0
lectric ater eating			0	0
lectric eating			0	0
Commercial Coo ing			0	0
Refrigeration			0	0
Resistance elders			0	0
Arc elders Largest nit			0	0
Charging Station			0	0
ther 1 escribe			0	0
ther 2 escribe			0	0
otal A	A	A	0	0

ther 1 escri tion

ther 2 escri tion

Sin e a e r e er

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	uantit	Load ach h	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
Air Conditioning			0	0 000
le ators			0	0 000
ire Pum			0	0 000

	uantit	Load ach h	1 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
ther escribe			0	0 000
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ther escri tion

	Largest Motor:	Motors 40 h abo e:
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Rated h		
Loc ed rotor current am s		
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Ser ice Point escri tion Location

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	uantit	Load ach A	3 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
i tin			500 40	500 4
e e ta e			460 14	57 5175
ater eating			0	0
lectric eating	23	68 10	1566 3	1174 725
Commercial Coo ing			0	0
Refrigeration			0	0
Resistance elders			0	0
Arc elders Largest nit			0	0
Charging Station	26	205	5330	1865 499999999
ther 1 escribe	23	107 52	2472 96	865 536
ther 2 escribe	576	5 21	3000 96	1050 336
otal A	A	A	13330 759999999	5514 0145

ther 1 escri tion

Commercial

ther 2 escri tion

Residential

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	uantit	Load ach h	3 Load otal A	CALC LA I S R I R AL S : Reser e Ca acit A
Air Conditioning			0	0 000
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ther escribe			0	0 000
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ther escri tion

	Largest Motor:	Motors 40 h abo e:
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	stimated ee from Ser ice nergi ation:
25 of lectrical Load	4
50 of lectrical Load	8
75 of lectrical Load	12
100 of lectrical Load	104

Street Side a m r ement

oes the ro ect include an street side al im ro ement along ublic streets

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If es contact slengineering sf ater org .

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his A lication form is for electric ser ice onl he installation and interconnection of self generation e ui ment including hoto oltaic s stems re uires the submission of an interconnection a lication and S P C a ro al Please contact hh o er sf ater org for more assistance

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ra n to scale indicating ro osed locations of electric metering including an s rin ler controller meter s itchgear and if a licable transformers Sho easements rights of a ro ert lines grading roads road names side al s dri e a s Indicate location of fire h drants and other structures drains ater se er storm and ro osed future im ro ements **inimum d i in ude re e ant dire ti na a e e end and nte t in rmati n** load at least one file

Potrero ard 2500 Mari osa floor lan df ☐ load a different file

Potrero ard 2500 Mari osa site sur e df ☐ load a different file

Choose File o file chosen

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Minimum 300 d i Include rele ant directional scale legend and conte t information

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Potrero ard 2500 Mari osa electrical dra ings df ☐ load a different file

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Single line diagram sho ing the meter customer main ser ice anel and its main s itch si e transformers if an oles aults and or unction bo es if an Minimum 300 d i include rele ant directional scale legend and conte t information load at least one file

Potrero ard 2500 Mari osa single line diagram feeder 2 df ☐ load a different file

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Additional information such as e isting acti e A lication

: his a lication co ers housing and retail loads and a ortion of the batter electric bus charging load PA70 Article 625 Sec42 states automatic load management s stem can be used for feeder rating ased on modeling estimated ea load ith load management is 2 8M chargers e ser ice estimate 5M commercial 3M residential and 2 8M Chargers esigns ha e automatic load management intelligent s itchgear that function as bac u limiting

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he a licant hereb a lies to the S P C for electric ser ice A licant ac no ledges that this A lication is sub ect to the S P C s *Rules and Regulations Governing Electric Service* that can be found at htt s: sf ater org lectricRules

clic ing Submit belo I agree that the information contained in this A lication is correct to the best of m no ledge I understand that an changes made to the abo e information or attached documents ma increase the time and costs re uired for S P C to ro ide electric ser ice at the re uested ser ice address and that I ill be res onsible for an increased costs resulting from such changes

I understand that ser ice ill be engineered and installed based in art u on the information ro ided here he S P C ill ro ide the A licant ith a ser ice agreement estimating the A licant s cost res onsibilit Sub ect to entering into a ser ice agreement ith the S P C I agree to a S P C for all or S P C erforms and all costs S P C incurs to ro ide the ser ice re uested b this A lication S P C ma cancel this ro ect if I do not roceed ith the ro ect and it becomes inacti e for 12 months If the ro ect is cancelled b either art I ill a S P C for all such or and costs incurred b S P C rior to the cancellation

☑ I ha e read and agree to the terms abo e

Contact ame itle

Rachel Alonso Pro ect Manager

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Close ate

06 01 2023

Stage

Pre A lication

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Reser e Ca acit
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Summer Demand

	Residential	Light Commercial	Commercial	Industrial
1:00 AM				
2:00 AM				
3:00 AM				
4:00 AM				
5:00 AM				
6:00 AM				
7:00 AM				
8:00 AM				
9:00 AM				
10:00 AM				
11:00 AM				
12:00 PM				
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12:00 AM				

Winter Demand

	Residential	Light Commercial	Commercial	Industrial
1:00 AM				
2:00 AM				
3:00 AM				
4:00 AM				
5:00 AM				
6:00 AM				
7:00 AM				
8:00 AM				
9:00 AM				
10:00 AM				
11:00 AM				

	Residential	Light Commercial	Commercial	Industrial
12:00 PM				
1:00 PM				
2:00 PM				
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4:00 PM				
5:00 PM				
6:00 PM				
7:00 PM				
8:00 PM				
9:00 PM				
10:00 PM				
11:00 PM				
12:00 AM				

Submit

Contact Information

3. SINGLE LINE DIAGRAM FEEDER 1

REVISION NOTES:

1) MOVED PRIMARY PG&E AND SFPUC METERS TO MAIN MV SWITCHGEAR IN ELECTRICAL ROOM

2) CHANGED GRAPHICAL DEPICTION OF INTERRUPTER SWITCHES TO CLEARLY DELINEATE SEPARATE VAULTS FOR PG&E AND SFPUC INTERRUPTERS.

PROJECT NO.	189247
DRAWN BY	VGS Systems
DATE	08/04/21
SCALE	NTS

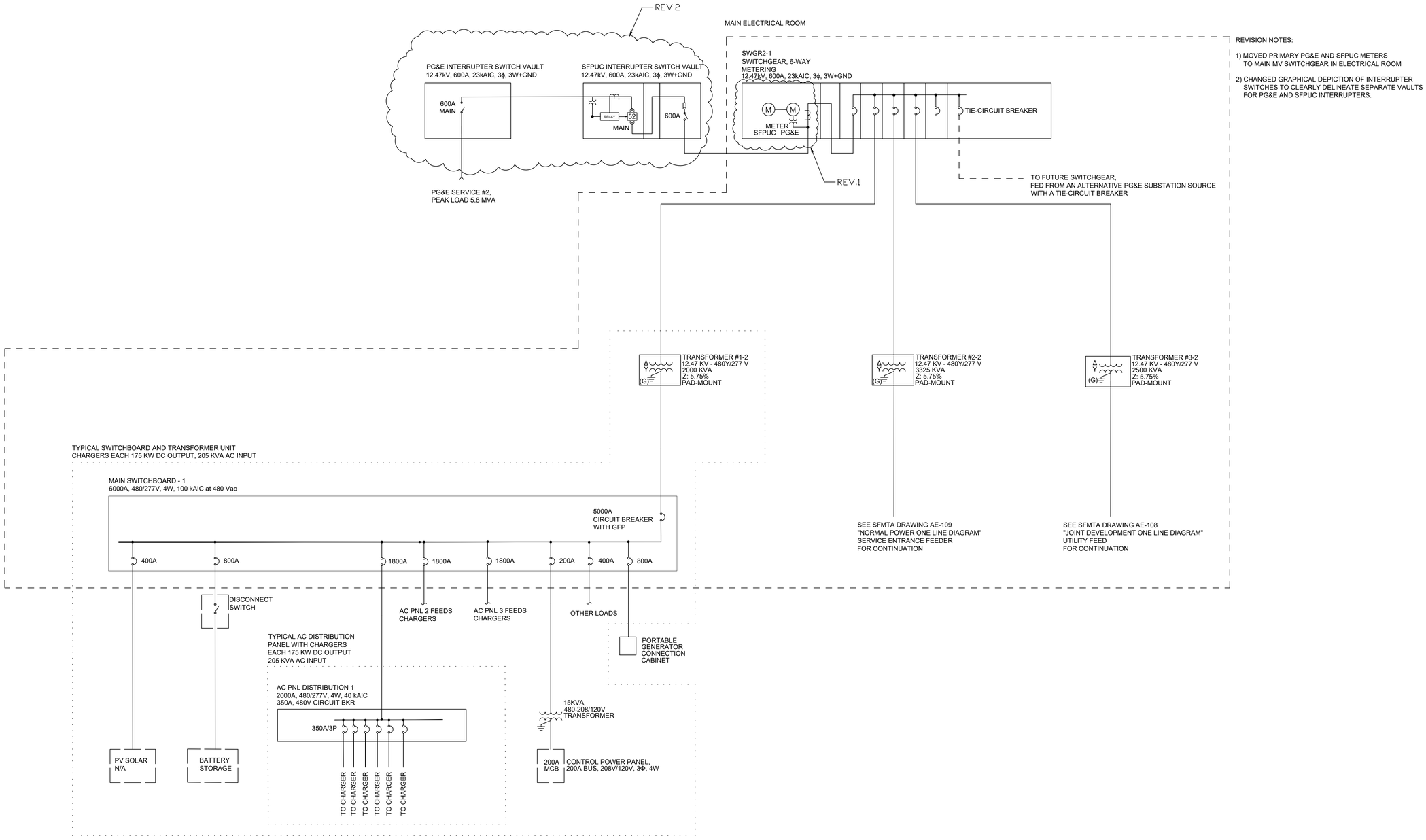
PROJECT TITLE
SFTMA ZE FACILITY PLAN

WSP USA Inc.
16200 PARK ROW
SUITE 200
HOUSTON, TEXAS 77084
TEL.: (281) 589-5900
FAX: (281) 759-5164

DRAWING TITLE
SINGLE-LINE DIAGRAM POTRERO YARD, SERVICE #1

DRAWING NUMBER
E.T.

4. SINGLE LINE DIAGRAM FEEDER 2



PROJECT NO.	189247
DRAWN BY	VGS Systems
DATE	08/04/21
SCALE	NTS

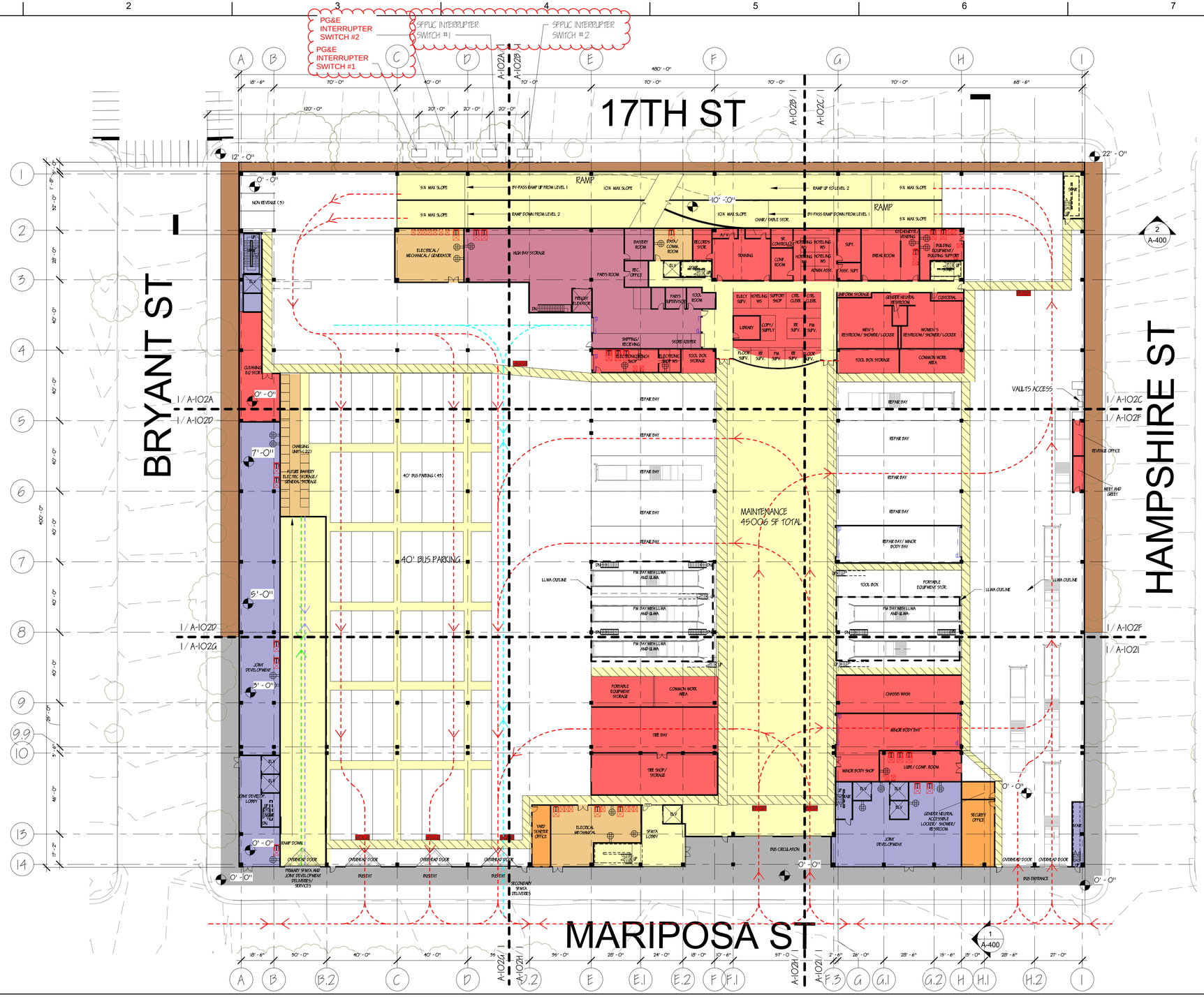
PROJECT TITLE
SFTMA ZE FACILITY PLAN

WSP USA Inc.
16200 PARK ROW
SUITE 200
HOUSTON, TEXAS 77084
TEL: (281) 589-5900
FAX: (281) 759-5164

DRAWING TITLE
SINGLE-LINE DIAGRAM POTRERO YARD, SERVICE #2

DRAWING NUMBER
E.T.

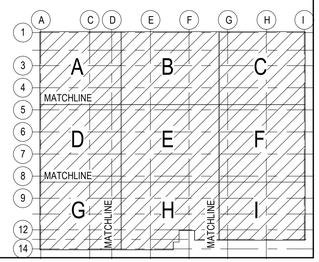
5. FLOOR PLAN



REVISION NOTES:
1) RENAMED INTERRUPTER SWITCH LOCATIONS FOR CLARITY
2) PRIMARY METERS TO BE LOCATED IN MAIN SWITCHGEAR IN MAIN ELECTRICAL ROOM
3) THERE ARE A TOTAL OF FOUR (4) UNDERGROUND VAULTS NEEDED FOR ELECTRICAL SERVICE. THERE ARE TWO (2) NEW SERVICES PLANNED AND EACH SERVICE REQUIRES TWO (2) INTERRUPTER VAULTS: ONE FOR THE PG&E INTERRUPTER AND ONE FOR THE SFPUC INTERRUPTER.
4) INTERRUPTER VAULT LOCATIONS ARE FIXED. LOCATION OF ALL ELECTRICAL WORK DOWNSTREAM OF THE INTERRUPTERS, INCLUDING THE LOCATION OF THE MAIN ELECTRICAL ROOM, IS AT THE DESCRETION OF THE DESIGNER.

- OPEN SPACE
- JOINT DEVELOPMENT
- MECH / SERVICE
- PARTS
- SERVICE AND CLEAN
- PARKING
- OPERATIONS
- CIRCULATION
- MAINTENANCE
- TRAINING
- SFMTA DELIVERY PRIMARY
- JOINT DEVELOPMENT STORAGE / SERVICE
- SFMTA BUS/ TROLLEY
- SFMTA DELIVERY SECONDARY

KEY PLAN



ISSUE	DATE	DESCRIPTION
3	March 13, 2020	Submittal
2	June 14, 2019	Draft Submittal
1	February 20, 2019	Draft Submittal

PROJECT MANAGER	
TEAM 1	Don Leidy
TEAM 2	Sheena Zimmerman
TEAM 3	Justin Kraegel
TEAM 4	Sara Jandaghi Jafari
TEAM 5	Jialing Sun
TEAM 6	Kashfi Kalam
TEAM 7	F. M. LAST
PROJECT NUMBER	10093201

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

SFMTA POTRERO SCENARIO 2 (3-LEVEL)

GROUND LEVEL- 1ST FLOOR OVERALL PLAN

0 30' 60'

FILENAME: SFMTA_Potrero_AR_2018_3 LeveL

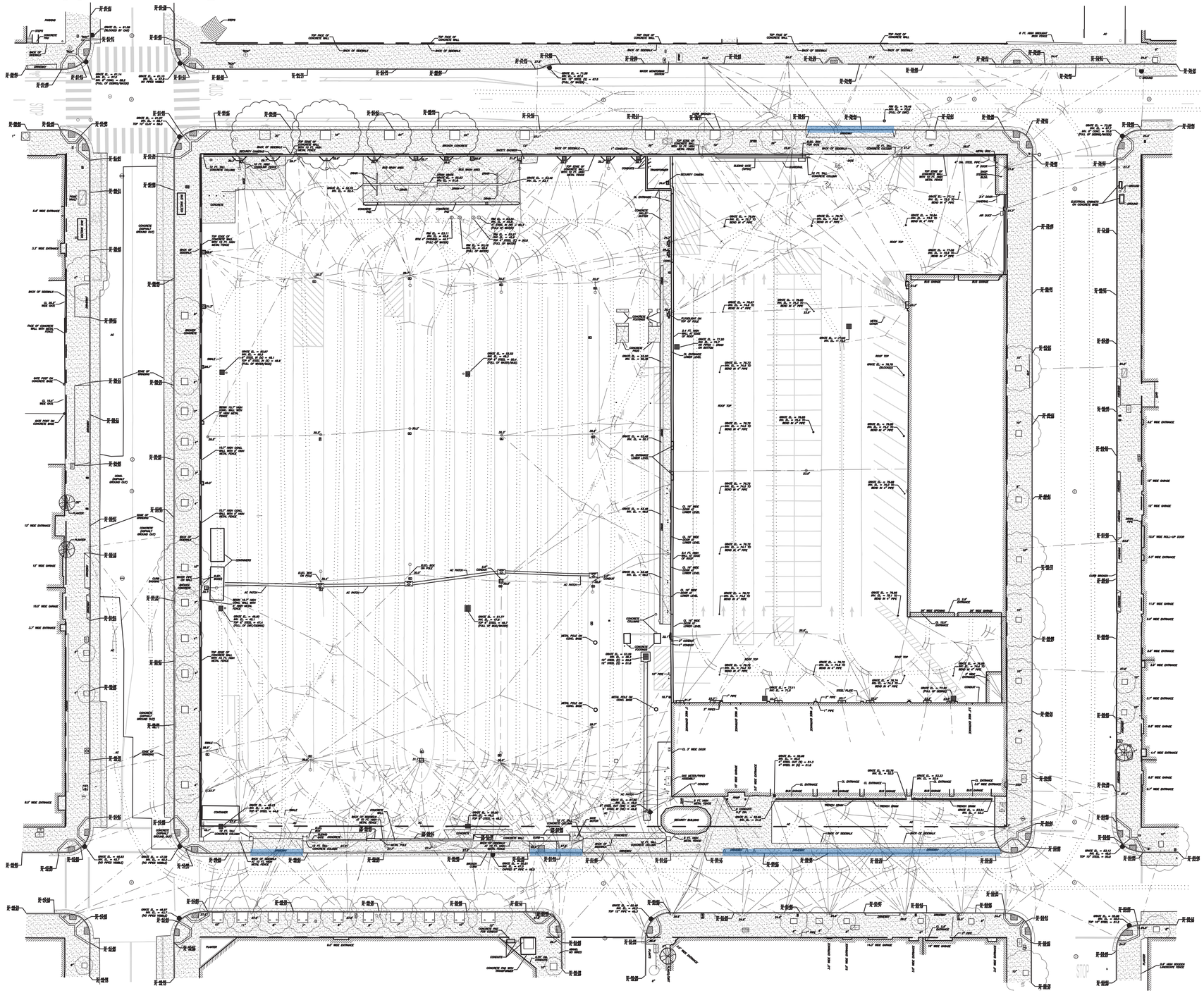
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SHEET: A-102

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6/4/2021 9:42:48 AM

6. SITE SURVEY

Site Survey/ Existing Site Plan



Existing Curb Cuts

Site survey by Bureau of Street Use and Mapping San Francisco, City and County of San Francisco, 06/05/2017. Provided by SFMTA.

LEGEND

- BENCH MARK
- SURVEY CONTROL POINT
- BIKE RACK
- BOLLARD
- AREA DRAIN
- CATCH BASIN
- DRAIN
- CONDUIT
- ELECTRIC VAULT
- ELECTROLIER
- FIRE ALARM BOX
- FIRE HYDRANT
- FLOOD LIGHT
- HPFS HYDRANT
- HPFS VALVE
- FIRE HYDR VALVE
- GAS VALVE
- GATE POST
- GUY POLE
- GUY WIRE
- MUNI GUYPOLE
- MUNI GUYPOLE+LIGHT
- GROUND LIGHT
- MAIL BOX
- MAIL BOX RELAY
- MH ELEC
- MH HETCH HETCHY
- MH SEWER
- MH TELEPHONE
- MH UNKNOWN
- PG&E VAULT
- PIPE
- POWER POLE
- POWER POLE WITH COBRA LIGHT
- PULL BOX DTIS
- PULL BOX UNKNOWN
- PULL BOX CABLE TV
- PULL BOX ELECTRIC
- PULL BOX PG&E
- PULL BOX SHELTER
- PULL BOX STREET LIGHT
- PULL BOX TELEPHONE
- PULL BOX TV
- PULL BOX WATER
- SECURITY CAMERA
- SEWER CLEAN OUT
- SEWER
- SIGN POLE
- SIGN POLES
- STAND PIPE
- TELEPHONE POLE
- TELEPHONE VAULT
- TRASH CAN
- UNKNOWN UTILITIES
- WATER METER
- WATER VALVE
- TREE WITH DRIP LINE
- TRUNCATED DOME
- MUNI OVERHEAD TRANSMISSION CABLES
- MUNI TENSION CABLES
- RIGHT OF WAY
- CONCRETE
- BRICK
- BUILDING
- MAJOR CONTOUR (240)
- MINOR CONTOUR (235)

ABBREVIATIONS

AC = ASPHALT
BW = BOTTOM OF WALL
FL = FLOW LINE
TC = TOP OF CURB
TW = TOP OF WALL

Prepared by	Bureau of Street Use and Mapping
Project Address	2500 Mariposa St, San Francisco, CA 94110
Date	11/20/2019
Scale	1”=30”
Sheet Number	02

SFMTA

7. ELECTRICAL PLANS



ISSUE	DATE	DESCRIPTION
3	March 13, 2020	Submittal
2	June 14, 2019	Draft Submittal
1	February 20, 2019	Draft Submittal

PROJECT MANAGER	
TEAM 1	Don Leidy
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TEAM 3	Justin Kraegel
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TEAM 5	Jialing Sun
TEAM 6	Kashfi Kalam
TEAM 7	F. M. LAST
PROJECT NUMBER	10093201

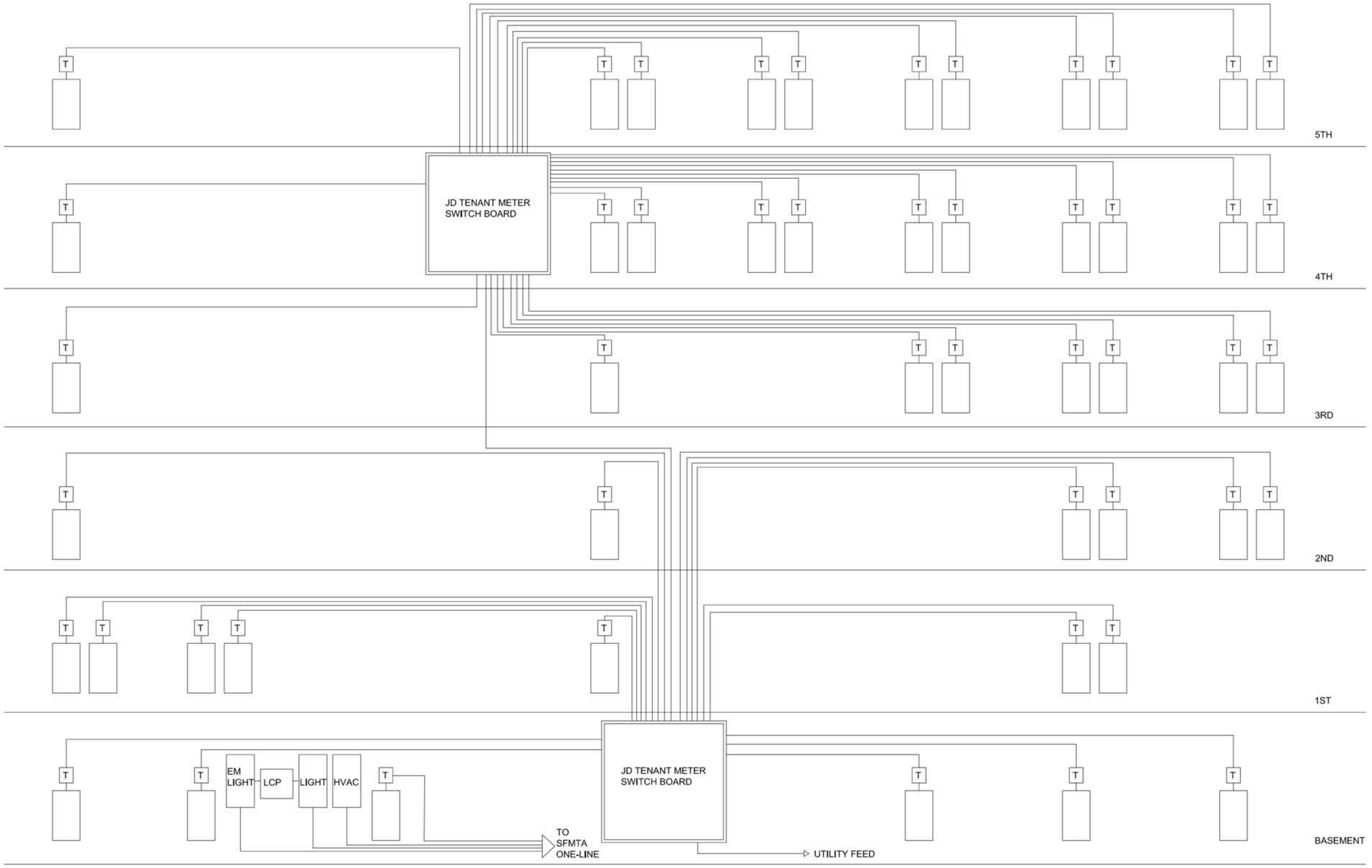
PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

SFMTA POTRERO SCENARIO 2 (3-LEVEL)

EMERGENCY POWER ONE LINE DIAGRAM- NTS

FILENAME	SFMTA_Potrero_AR_2018_3 LeveL	SHEET	AE-107
SCALE			

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C:\rvt\2018\SFMTA_Potrero_AR_2018_3 LeveL_ Central_kashfi.kalamXF6FA_06Apr2021_075440.rvt
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ISSUE	DATE	DESCRIPTION
3	March 13, 2020	Submittal
2	June 14, 2019	Draft Submittal
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PROJECT MANAGER	
TEAM 1	Don Leidy
TEAM 2	Sheena Zimmerman
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TEAM 5	Jialing Sun
TEAM 6	Kashfi Kalam
TEAM 7	F. M. LAST
PROJECT NUMBER	10093201

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

SFMTA POTRERO SCENARIO 2 (3-LEVEL)

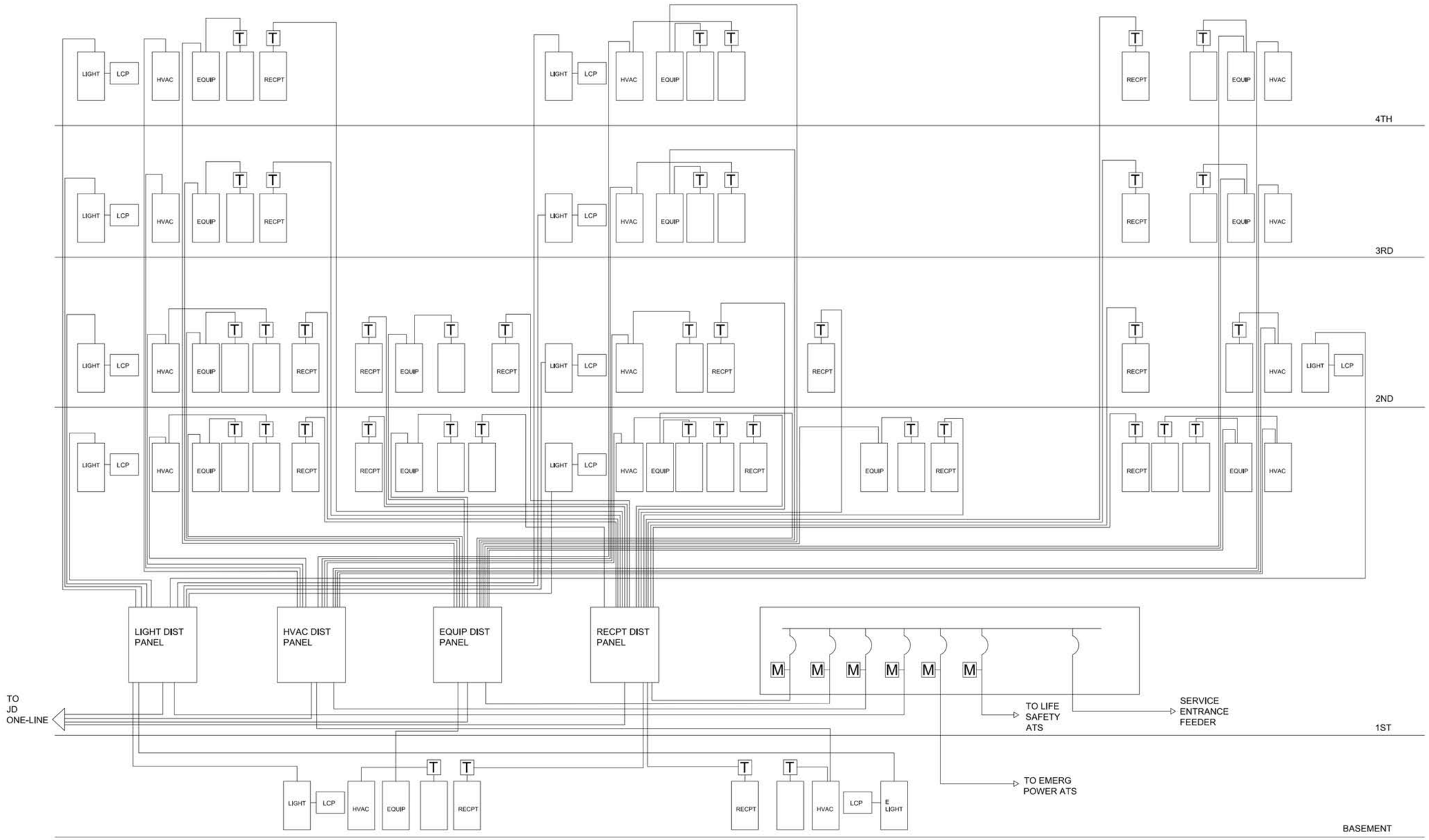
JOINT DEVELOPMENT ONE LINE DIAGRAM- NTS

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SCALE

SHEET: **AE-108**



ISSUE	DATE	DESCRIPTION
3	March 13, 2020	Submittal
2	June 14, 2019	Draft Submittal
1	February 20, 2019	Draft Submittal

PROJECT MANAGER	
TEAM 1	Don Leidy
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TEAM 5	Jialing Sun
TEAM 6	Kashfi Kalam
TEAM 7	F. M. LAST
PROJECT NUMBER	10093201

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

SFMTA POTRERO SCENARIO 2 (3-LEVEL)

NORMAL POWER ONE LINE DIAGRAM- NTS

0

FILENAME: SFMTA_Potrero_AR_2018_3 LeveL

SCALE

SHEET: **AE-109**

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APPENDIX D:
TRACTION POWER FEEDER MAP

SYMBOLS	
⊣●⊢	CONNECTION BETWEEN TROLLEY WIRES
⊣⌒⊢	NO CONNECTION BETWEEN TROLLEY WIRES
⊣|⊢	TROLLEY SECTION BREAK
⊣	NO ELECTRICAL CONNECTION
MS 10	MANUAL SWITCH NUMBER
SS 8	SECTIONALIZING SWITCH NUMBER
SB 15	SECTIONALIZING BREAKER NUMBER
⌒	TROLLEY SECTION BREAK WITH JUMPER
GB	GAP BREAKER
WP-13	CIRCUIT BREAKER NUMBER
252+34	SURVEY STATION
101	LOCATION SIGN
(SB)	FUTURE INSTALLATION

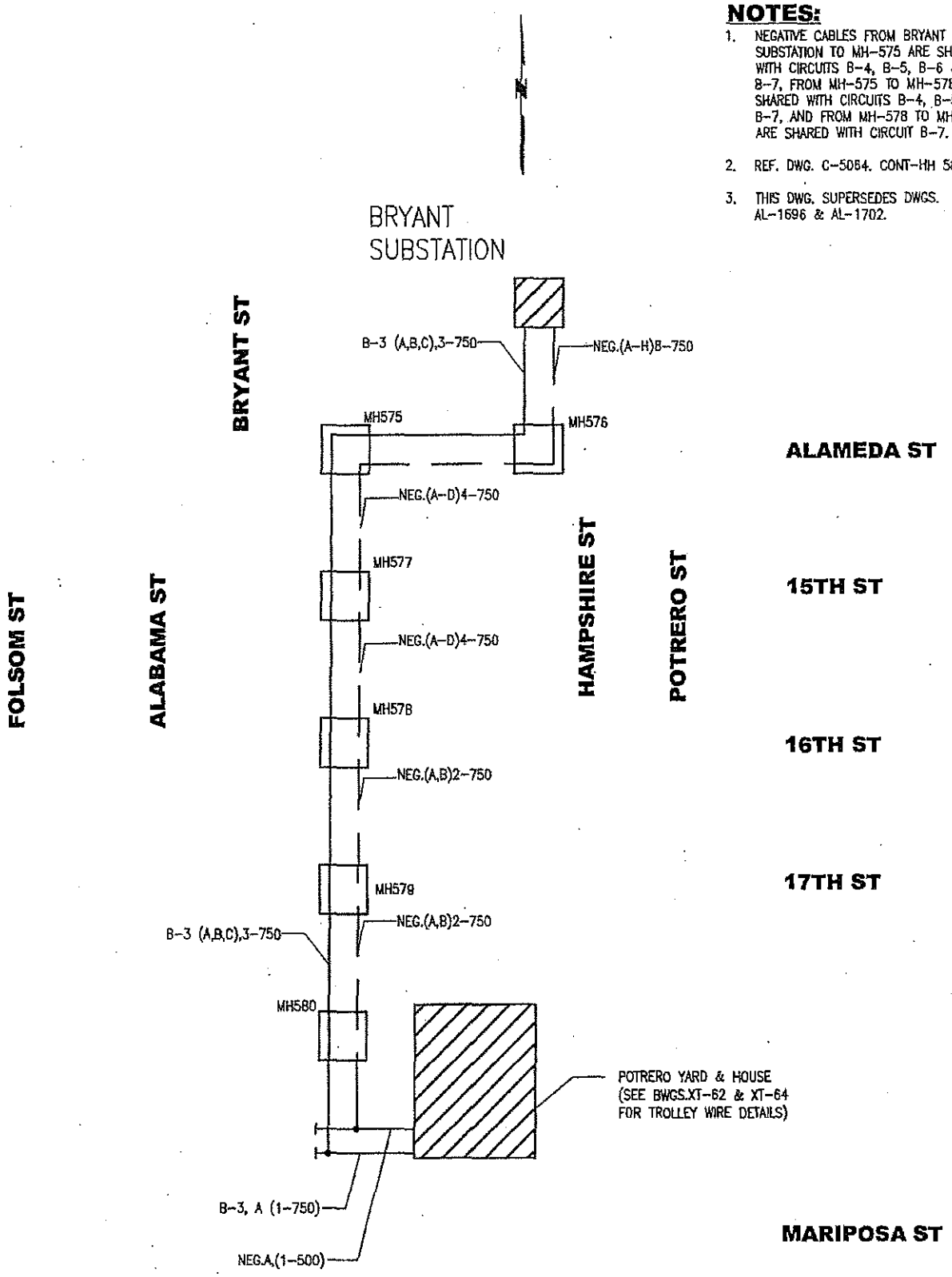

JEFFERSON ST BEACH
MARINA BLVD
DIVISADERO
FRANCISCO
MARINA SUBSTATION
BUCHANAN
JEFFERSON ST BEACH
NORTH POINT ST
COLUMBUS
JONES
MS-10
MS-13
CHESTNUT ST
FILBERT
MS-14
UNION ST
GREEN ST
GREENWICH ST
STEINER
GREEN
MS-6
BROADWAY
WALNUT ST
PRESIDIO AVE
LYON
BAKER
BRODERICK
DIVISADERO
WEBSTER
MS-5
CLAY ST
WASHINGTON
WASHINGTON ST
STOCKTON
MONTGOMERY ST
LEIDESDORFF
SANSOME ST
BATTERY ST
DAVIS
FRONT
EMBARCADERO
STATION "C"
JACKSON ST
SACRAMENTO ST
TUNNEL
KEARNY
PUSH
MS-21
MS-22
SUTTER ST
POST ST
GOUGH
FILLMORE SUBSTATION
BUSH
BEALE ST
BRANNAN ST
1st ST
2nd ST
DOWNTOWN STATION
MARKET ST
MS-15
MS-18
MS-27
LARKIN
LEAVENWORTH
JONES
TAYLOR
MASON
POLK
TURK
GOLDEN GATE
EDDY ST
FILLMORE
SCOTT
MS-24
McALLISTER ST
GEARY BLVD
ARGUELLO BLVD
ANZA ST
CALIFORNIA ST
PRESIDIO COACH YARD & HOUSE
MAPLE
33rd AVE
32nd AVE
14th AVE
8th AVE
6th AVE
5th AVE
CLEMENT ST
RICHMOND SUBSTATION
MS-25
BALBOA SUBSTATION
45th AVE
BALBOA ST
CABRILLO ST
MS-26
FULTON ST
GREAT HIGHWAY
LA PLAYA
HAYES
MS-9
MS-4
MS-29
HAIGHT ST
MASONIC
STANYAN ST
WALLER
HERMANN ST
DUBOCE AVE
SS-3
CHURCH SUBSTATION
JACKSON
PAGE
LAGUNA
OCTAVIA
FELL
HAYES
GROVE ST
MS-8
MS-7
MS-14
MS-17
MS-12
MS-11
MS-28
MS-19
MS-20
MS-16
MS-22
DIVISION
BRYANT SUBSTATION AND POWER CONTROL CENTER
ALAMEDA
16th ST
15th ST
14th ST
TO SUBWAY
MARKET ST
CIVIC CENTER SUBSTATION
HOWARD
MISSION
SOUTH VAN NESS AVE
VALENCIA ST
LEXINGTON
CAPP
KING
KING SUBSTATION
MISSION BAY
OWENS
ILLINOIS
ILLINOIS SUBSTATION
17th ST
MARIPOSA
18th ST
KENNEDY ST
KINGS
POTRERO
POTRERO YARD ONLY
BRYANT ST
CONNECTICUT ST
TENNESSEE ST
19th ST
20th ST
22nd ST
24th ST
25th ST
26th ST
MICHIGAN
MICHIGAN SUBSTATION
SB-16
SB-17
MARIN ST
ISLAIS ST
CESAR CHAVEZ ST
HAMPSHIRE
SUNSET TUNNEL
FREDERICK ST
CARL
IRVING ST
SS-2
2nd AVE
JUDAH
JUDAH ST
32nd AVE
30th AVE
22nd AVE
SS-1
STATION "N"
CARL SUBSTATION
MS-3
SS-4
20th ST
19th ST
18th ST
STATION "K"
DIAMOND ST
COLUMBIDO ST
CASTRO ST
CLIPPER
26th ST
NOE ST
SS-9
MS-16
CHURCH
DOLORES
MS-22
30th ST
ANDOVER
FOLSOM
NEVADA
HILTON
BAYSHORE
CORTLAND
BERNAL SUBSTATION
GLEN PARK SUBSTATION
BROOK
RANDALL
RICHLAND AVE
LIESE
MISSION ST
TRUMBULL ST
SAN JOSE AVE
BADEN
SS-10
MS-15
PHELAN
OCEAN AVE
SAN JOSE SUBSTATION
GENEVA
YARD
SHOP
GENEVA SHOPS
SJ-14
SJ-15
MS-23
OUTER MISSION SUBSTATION
PERSIA
RUSSIA
LONDON
PHELPS SUBSTATION
PHELPS ST
HUDSON ST
3rd ST
PALOU
NEWHALL
NEWCOMB
WILLIAMS
ARMSTRONG
VAN DYKE
BANCROFT
SB-18
KEITH SUBSTATION
KEITH
40th ST
LE CONTE
ARLETA AVE
BAYSHORE BLVD
N. HESTER ST
SUNNYDALE AVE
BAYSHORE BLVD
LAGUNA HONDA SUBSTATION
LAGUNA HONDA HOSP.
MUNI 175
MUNI 176
MUNI 311
MUNI 312
MUNI 313
MUNI 314
TWIN PEAKS TUNNEL
FOREST HILL
MUNI 275
MUNI 276
MUNI 315
MUNI 316
MUNI 317
MUNI 318
MUNI 319
MUNI 320
MUNI 321
MUNI 322
MUNI 323
MUNI 324
MUNI 325
MUNI 326
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MUNI 328
MUNI 329
MUNI 330
MUNI 331
MUNI 332
MUNI 333
MUNI 334
MUNI

FEEDER B-3

MANHOLE #	LOCATION	COMMENTS
MH 576	IFO Bryant Substation	
MH 575	Alameda & Bryant	
MH 577	N/E 15th St. & Bryant	
MH 578	N/E 16th St. & Bryant	
MH 579	W/S Bryant S/O 17th St.	
MH 580	IFO Abbet Electric	

NOTES:

1. NEGATIVE CABLES FROM BRYANT SUBSTATION TO MH-575 ARE SHARE WITH CIRCUITS B-4, B-5, B-6 & B-7, FROM MH-575 TO MH-578 ARE SHARED WITH CIRCUITS B-4, B-5 & B-7, AND FROM MH-578 TO MH-580 ARE SHARED WITH CIRCUIT B-7.
2. REF. DWG. C-5084. CONT-HH 586.
3. THIS DWG. SUPERSEDES DWGS. AL-1696 & AL-1702.



CITY AND COUNTY OF SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY

MUNICIPAL RAILWAY FEEDER DIAGRAM

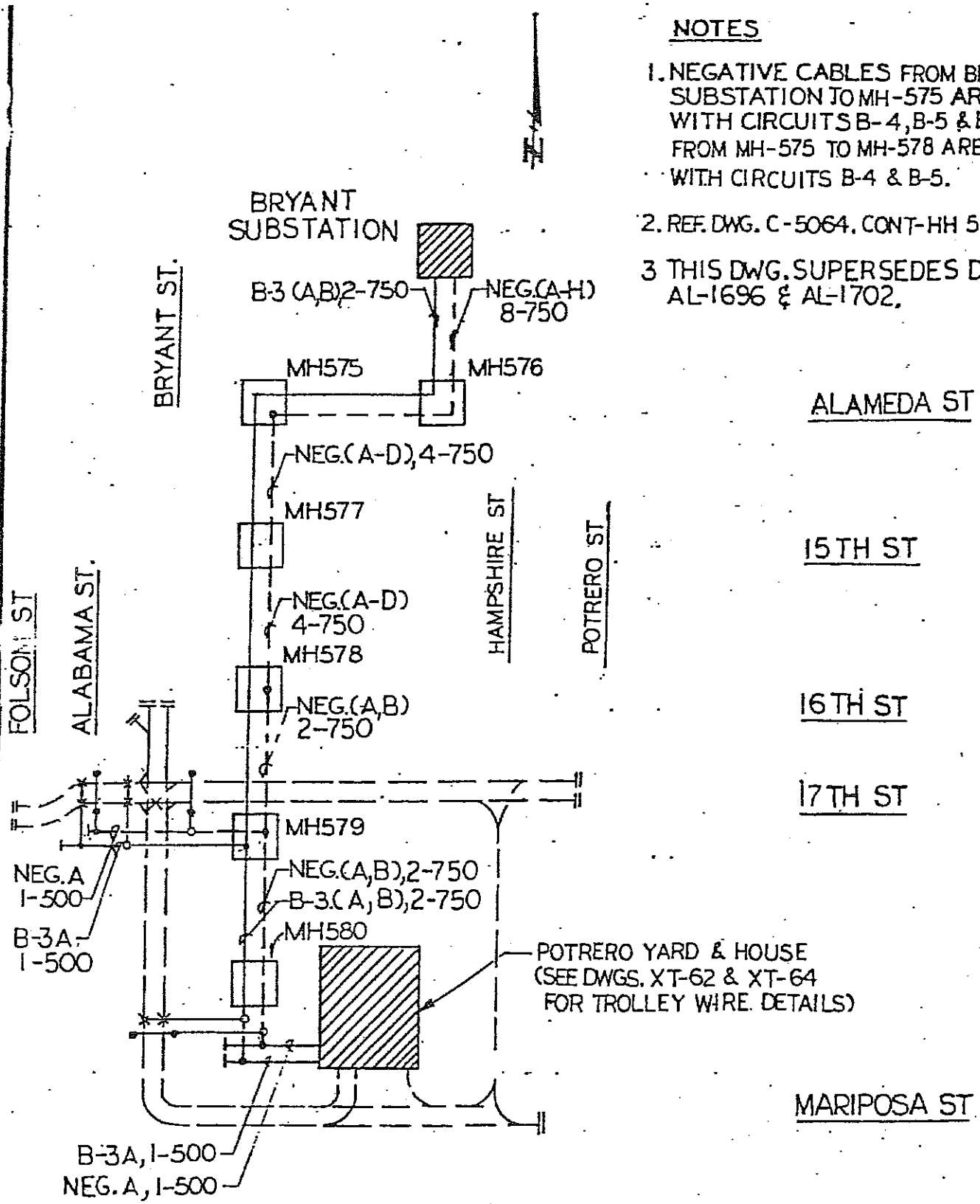
FEEDER B-3

NO	DATE	DESCRIPTION	BY	CH	APPR'D
		REVISIONS			

BY	TR	APPROVED	SCALE	DATE	LATEST REVISION
DR	CH	APPROVED		DRAWING NO	REVISION NO
RECOMMENDED					

NOTES

1. NEGATIVE CABLES FROM BRYANT SUBSTATION TO MH-575 ARE SHARE WITH CIRCUITS B-4, B-5 & B-6, AND FROM MH-575 TO MH-578 ARE SHARED WITH CIRCUITS B-4 & B-5.
2. REF. DWG. C-5064. CONT-HH 586.
3. THIS DWG. SUPERSEDES DWGS. AL-1696 & AL-1702.



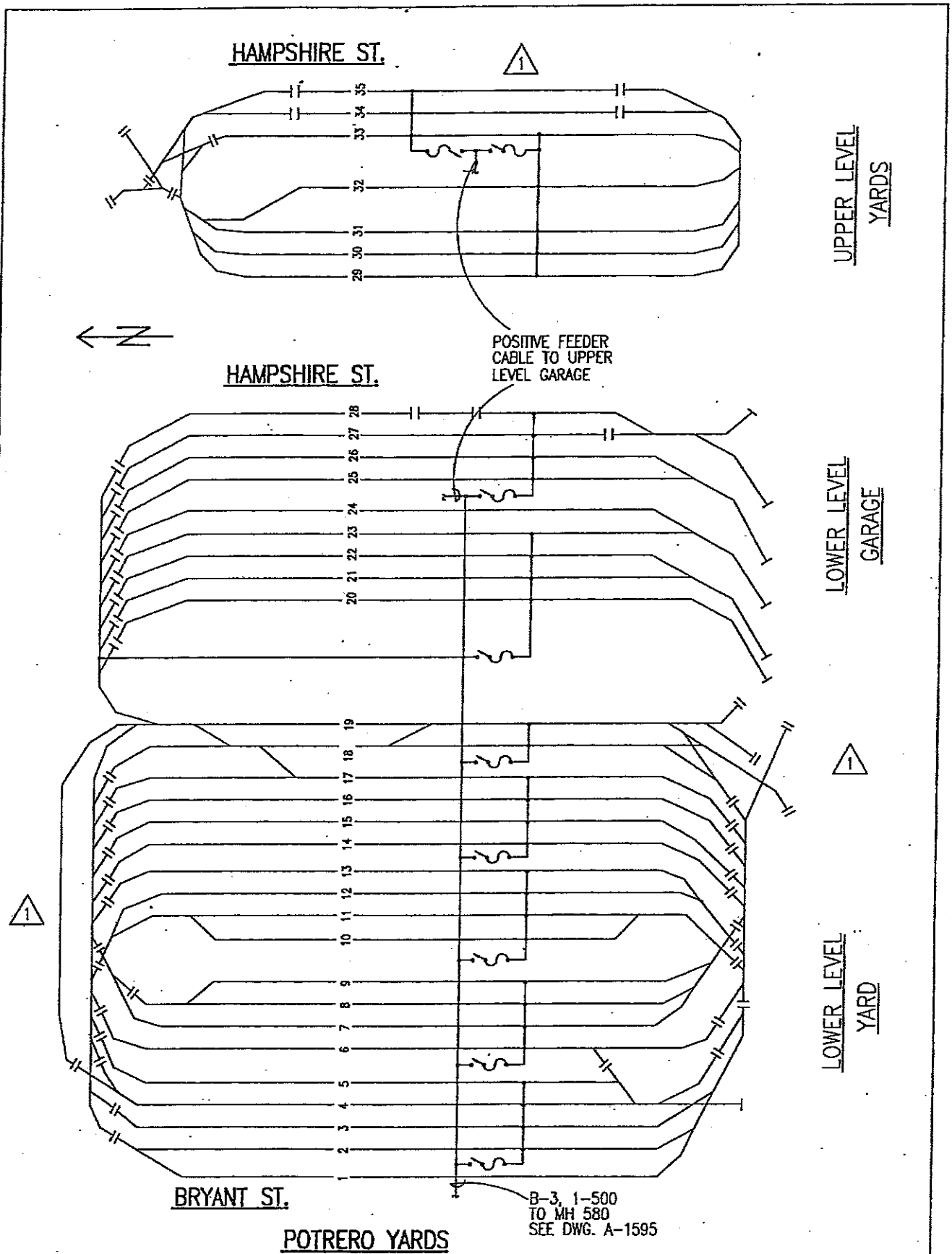
CITY AND COUNTY OF SAN FRANCISCO — PUBLIC UTILITIES COMMISSION

HETCH HETCHY WATER AND POWER

MUNICIPAL RAILWAY FEEDER DIAGRAM

FEEDER B-3

BY TBQ	TR.	APPROVED	SCALE NONE	DATE AUG. 1980	LATEST REVISION —
DR.	CH.	APPROVED	APPROVED	DRAWING NO.	REVISION NO.



POTRERO YARDS

NOTE:
1. THIS DWG. SUPERSEDES DWG. AL-1702

CITY AND COUNTY OF SAN FRANCIOCO
HETCH HETCHY WATER AND POWER

TRANSIT POWER DIVISION

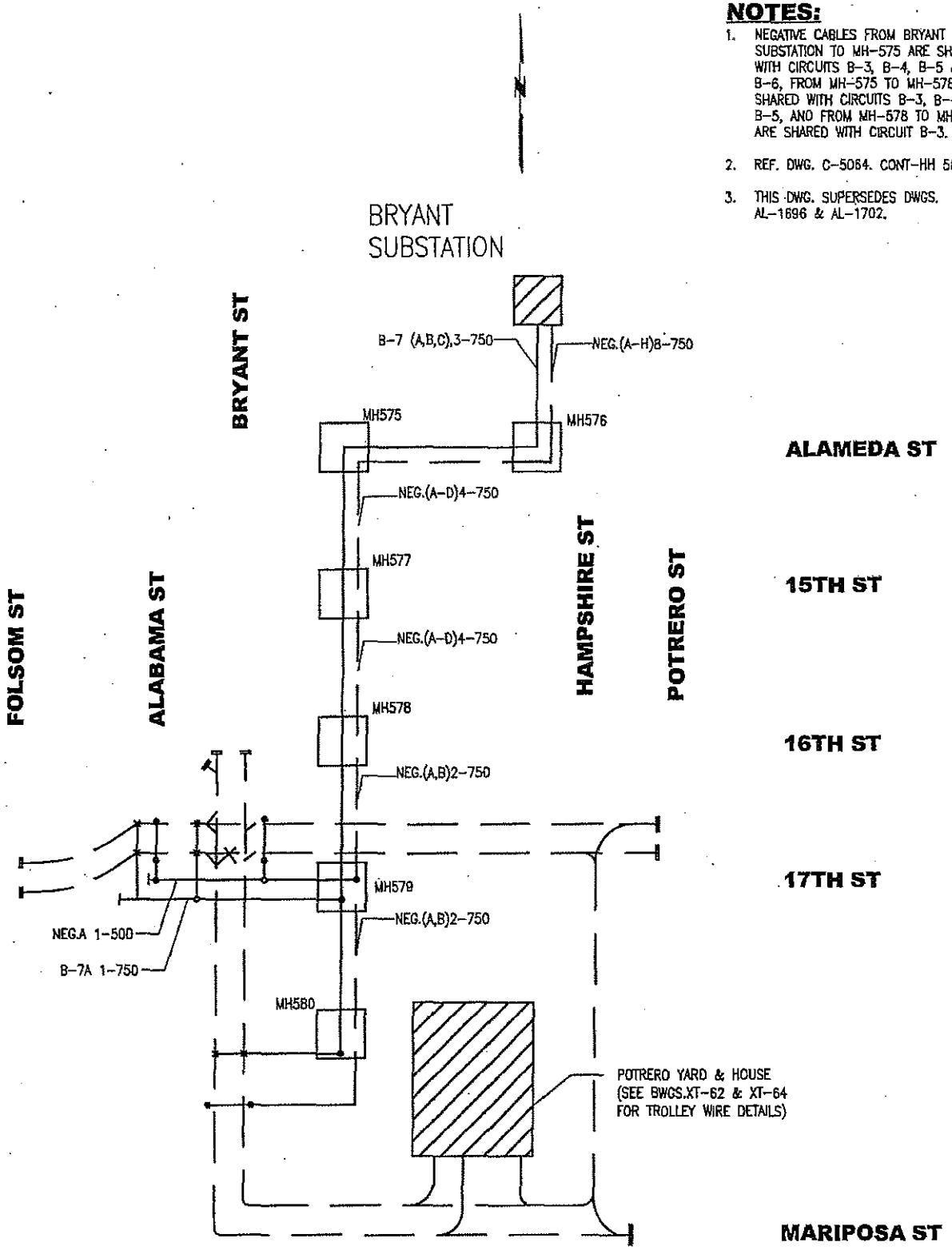
FEEDER B-3 (YARD)

NO.	DATE	DESCRIPTION	BY	APPVD.
1	JAN/95	ADDED MORE LANES	AZ	CJM

BY RK | DR. | CH. | APPROVED | APPROVED | SCALE | DATE APR. 83 | DRAWING NO. | LATEST REVISION | REVISION NO.

NOTES:

1. NEGATIVE CABLES FROM BRYANT SUBSTATION TO MH-575 ARE SHARE WITH CIRCUITS B-3, B-4, B-5 & B-6, FROM MH-575 TO MH-578 ARE SHARED WITH CIRCUITS B-3, B-4, & B-5, AND FROM MH-578 TO MH-580 ARE SHARED WITH CIRCUIT B-3.
2. REF. DWG. C-5064. CONT-HH 586.
3. THIS DWG. SUPERSEDES DWGS. AL-1696 & AL-1702.



CITY AND COUNTY OF SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY

MUNICIPAL RAILWAY FEEDER DIAGRAM

FEEDER B-7

NO	DATE	DESCRIPTION	BY	CH	APP'D
		REVISIONS			

BY	TR	APPROVED	SCALE	DATE	LATEST REVISION
DR	CH	APPROVED		DRAWING NO	REVISION NO
RECOMMENDED					

APPENDIX E:
SAMPLE ROUTE SCHEDULES

SEE PAGE 9 FOR 30 LINE THAT NEED TO PULL OUT FROM PRESIDIO
SEE PAGE 10 FOR 6 & 22 LINE THAT NEED TO PULL OUT FROM PRESIDIO

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POTRERO

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PANDTS O	PULL OUT	PULL IN	CAR COACH	TBRACTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
104	1401		TC60		356A	128X			301		A			
103	501		TC60		419A	1259X			304		B			
102	1402		TC60		426A	1058P			306		C			
101	1403		TC60		436A	628P			308		D			
100	502		TC60		439A	948P			309		E			
99	2201		ET40		440A	755P			310		A			
98	1404		TC60		441A	1010P			311		F			
97	1405		TC60		447A	822P			313		G			
96	503		TC60		450A	1041P			314		H			
95	2202		ET40		453A	810P			315		B			
94	1406		TC60		456A	1013P			318		I			
93	504		TC60		456A	834P			319		J			
92	1407		TC60		503A	1046P			321		I			

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POTRERO

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
91	2203		ET40		506A	825P			322		C			
90	601		ET40		508A	811P			317		D			
89	1408		TC60		509A	213X			323		J			
88	3021		TC60		511A	707P			326		A			
87	3301		ET40		515A	743P			327		E			
86	1409		TC60		516A	151X			328		B			
85	1410		TC60		517A	746P			330		C			
84	505		TC60		517A	853P			329		D			
83	2204		ET40		518A	840P			332		F			
82	3009		ET40		518A	837P			331		G			
81	1411		TC60		521A	1034P			334		E			
80	602		ET40		522A	722P			324		H			
79	1412		TC60		524A	846P			335		F			
78	2205		ET40		530A	1032P			336		I			

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POTRERO

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
77	603		ET40		534A	737P			333		J			
76	3302		ET40		535A	110X			338		A			
75	1413		TC60		536A	254X			339		G			
74	506		TC60		538A	905P			340		H			
73	2206		ET40		542A	718P			342		B			
72	3022		TC60		542A	753P			343		I			
71	507		TC60		545A	923P			345		J			
70	3304		ET40		546A	1250X			346		C			
69	604		ET40		546A	1101A			337		D			
68	3303		ET40		550A	140X			347		E			
67	1414		TC60		551A	806P			348		A			
66	2207		ET40		551A	918P			350		F			
65	605		ET40		551A	105X			341		G			
64	2208		ET40		557A	910P			352		H			

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____
DAY DATE

DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : WEEKDAY AND COACH MILEAGE RECORD PAGE 4 OF 10

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
63	606		ET40		557A	136X			344		I			
62	2209		ET40		600A	933P			354		J			
61	2210		ET40		603A	741P			356		A			
60	3306		ET40		603A	1014P			357		B			
59	508		TC60		603A	1133P			355		B			
58	3305		ET40		606A	120X			359		C			
57	509		TC60		606A	750P			360		C			
56	607		ET40		609A	847P			351		D			
55	3023		TC60		613A	650P			362		D			
54	608		ET40		618A	115X			358		E			
53	3012		ET40		622A	807P			363		F			
52	2211		ET40		623A	115X			365		G			
51	510		TC60		623A	957P			364		E			
50	609		ET40		624A	135X			361		H			

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COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : WEEKDAY AND COACH MILEAGE RECORD PAGE 5 OF 10

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
49	511		TC60		625A	118X			366		F			
48	1415		TC60		626A	1046A			367		G			
47	512		TC60		631A	1015P			369		H			
46	1416		TC60		634A	809P			370		I			
45	3307		ET40		636A	1111P			372		I			
44	2212		ET40		639A	1134P			373		J			
43	513		TC60		639A	910P			374		J			
42	2213		ET40		640A	1155P			375		A			
41	3024		TC60		641A	701P			376		A			
40	610		ET40		641A	854P			368		B			
39	514		TC60		646A	129X			377		B			
38	2214		ET40		654A	810P			378		C			
37	515		TC60		656A	1030P			380		C			

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DAY DATE

DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : WEEKDAY AND COACH MILEAGE RECORD PAGE 6 OF 10

COUNT	TRAIN	HOLD	TYPE	PANDTOS	PULL OUT	PULL IN	CAR COACH	TBREARCTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
36	3025		TC60		704A	725P			381		D			
35	3014		TC60		706A	655P			382		E			
34	1417		TC60		707A	836P			383		F			
33	611		ET40		708A	1235X			379		D			
32	2215		ET40		710A	646P			384		E			
31	516		TC60		717A	1053P			385		G			
30	2216		ET40		718A	1223X			386		F			
29	3309		ET40		725A	754P			387		G			
28	3308		ET40		735A	703P			388		H			
27	3026		TC60		739A	759P			390		H			
26	2217		ET40		740A	1023A			501		I			
25	612		ET40		748A	949P			389		J			
24	1418		TC60		803A	929P			391		I			
23	3015		TC60		842A	719P			392		J			

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DIVISION: POTRERO

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTSO	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
22	3016		TC60		859A	736P			393		A			
21	3017		TC60		907A	741P			394		B			
20	3018		TC60		934A	804P			395		C			
19	3019		TC60		939A	644P			396		D			
18	1431		TC60		139P	240X			375		E			
17	2252		ET40		158P	656P			386		B			
16	551		TC60		157P	743P			398		F			
15	1432		TC60		225P	1231X			373		G			
14	2253		ET40		235P	730P			371		B			
13	552		TC60		249P	837P			364		H			
12	1433		TC60		251P	750P			399		I			
11	553		TC60		328P	720P			389		J			
10	554		TC60		348P	810P			397		A			

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DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : WEEKDAY AND COACH MILEAGE RECORD PAGE 8 OF 10

COUNT	TRAIN	HOLD	TYPE	PANDTOS	PULL OUT	PULL IN	CAR COACH	TBRACKH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
9	2291		ET40		858P	506X			486		C			
8	591		ET40		904P	527X			487		D			
7	1491		ET40		910P	608X			488		E			
6	2292		ET40		913P	536X			489		F			
5	1492		ET40		921P	554X			490		G			
4	592		ET40		924P	557X			491		H			
3	1494		ET40		949P	524X			492		I			
2	1493		ET40		950P	538X			493		J			
1	2293		ET40		1013P	606X			494		A			

PULL OUT FROM PRE

SIGNUP : 2018 SPRING

EFFECTIVE: 02-24-2018 FOR _____ _____ 20____
DAY DATE

DIVISION: POT/PRE

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT
AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PANDS NOT	PULL OUT	PULL IN	CAR COACH	TBR EAC TKH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
14	3001		ET40		408A	747P			302		A			
13	3002		ET40		418A	111X			303		B			
12	3003		ET40		425A	131X			305		C			
11	3004		ET40		434A	151X			307		D			
10	3005		ET40		444A	929P			312		E			
9	3006		ET40		454A	211X			316		F			
8	3007		ET40		502A	730P			320		G			
7	3008		ET40		510A	1009P			325		H			
6	3010		ET40		551A	855P			349		I			
5	3011		ET40		600A	713P			353		J			
4	3013		ET40		635A	116X			371		A			

PULL OUT FROM PRE

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POT/PRE

SERVICE : WEEKDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PANDS	NOT	PULL OUT	PULL IN	CAR COACH	TBR ACK	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
3	2251		ET40			156P	1000P			444		B			
2	651		ET40			226P	717P			394		C			
1	652		ET40			343P	821P			411		D			

SEE PAGE 7 FOR 30 LINE THAT NEED TO PULL OUT FROM PRESIDIO

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POTRERO

SERVICE : SATURDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAND OS	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
81	501		TC60		418A	108X			311		K			
80	502		TC60		438A	822P			314		L			
79	1401		TC60		442A	1014P			313		M			
78	3001		ET40		447A	754P			312		K			
77	2201		ET40		454A	1031P			315		L			
76	503		TC60		457A	922P			325		N			
75	504		TC60		458A	1031P			316		O			
74	1402		TC60		459A	115X			326		P			
73	1403		TC60		507A	601P			323		Q			
72	601		ET40		507A	1242X			317		M			
71	2202		ET40		514A	725P			322		N			
70	3301		ET40		516A	1111P			329		O			
69	505		TC60		516A	1046P			353		R			

SIGNUP : 2018 SPRING

EFFECTIVE: 02-24-2018 FOR _____ _____ 20____
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DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SATURDAY AND COACH MILEAGE RECORD PAGE 2 OF 7

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
68	1405		TC60		521A	1022P			332		K			
67	1404		TC60		523A	1242X			335		L			
66	602		ET40		525A	134X			328		P			
65	2203		ET40		534A	923P			336		Q			
64	1406		TC60		537A	946P			337		M			
63	603		ET40		545A	716P			333		R			
62	3302		ET40		546A	853P			339		K			
61	3303		ET40		546A	148X			341		L			
60	2204		ET40		551A	116X			343		M			
59	1407		TC60		601A	807P			346		N			
58	1408		TC60		601A	706P			347		O			
57	604		ET40		604A	137X			342		N			
56	2205		ET40		606A	823P			350		O			
55	506		TC60		612A	123X			354		P			

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DIVISION: POTRERO

SERVICE : SATURDAY

COACH ASSIGNMENT, OPERATOR REPORT
AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PANDTOS	PULL OUT	PULL IN	CAR COACH	TBEARCTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
54	1409		TC60		620A	202X			351		Q			
53	605		ET40		624A	1257X			352		P			
52	507		TC60		634A	714P			359		R			
51	2206		ET40		635A	658P			360		Q			
50	508		TC60		655A	1103P			344		K			
49	1410		TC60		658A	1122P			361		L			
48	607		ET40		707A	117X			357		R			
47	510		TC60		713A	804P			363		M			
46	2207		ET40		716A	757P			368		K			
45	606		ET40		726A	949P			367		L			
44	1411		TC60		729A	732P			370		N			
43	3008		ET40		730A	941P			369		M			
42	509		TC60		733A	1022P			375		O			
41	511		TC60		738A	135X			373		P			

SIGNUP : 2018 SPRING

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DAY DATE

DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SATURDAY AND COACH MILEAGE RECORD PAGE 4 OF 7

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
40	3304		ET40		744A	1255X			371		N			
39	2208		ET40		751A	1023P			372		O			
38	3013		TC60		818A	700P			382		Q			
37	3010		ET40		819A	710P			384		P			
36	608		ET40		819A	729P			381		Q			
35	2209		ET40		823A	908P			380		R			
34	1412		TC60		825A	937P			391		R			
33	3015		TC60		832A	708P			394		K			
32	3017		TC60		841A	717P			395		L			
31	512		TC60		841A	734P			392		M			
30	3019		TC60		847A	734P			396		N			
29	3014		TC60		853A	615P			397		O			
28	2210		ET40		854A	1133P			399		K			
27	3016		TC60		903A	624P			398		P			

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DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SATURDAY AND COACH MILEAGE RECORD PAGE 5 OF 7

COUNT	TRAIN	HOLD	TYPE	PANDTSO	PULL OUT	PULL IN	CAR COACH	TBREARCTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
26	3018		TC60		913A	633P			400		Q			
25	3020		TC60		923A	642P			403		R			
24	2211		ET40		924A	611P			406		L			
23	1413		TC60		927A	227X			376		K			
22	3305		ET40		927A	1013P			407		M			
21	3021		TC60		933A	651P			408		L			
20	609		ET40		937A	750P			405		N			
19	3306		ET40		943A	121X			404		O			
18	610		ET40		950A	749P			411		P			
17	513		TC60		953A	853P			414		M			
16	1414		TC60		955A	150X			410		N			
15	1415		TC60		1003A	255X			416		O			
14	3022		TC60		1006A	725P			420		P			

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DIVISION: POTRERO

SERVICE : SATURDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTSO	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
13	2212		ET40		1013A	1227X			417		Q			
12	3307		ET40		1023A	119X			422		R			
11	3023		ET40		1111A	152X			361		K			
10	2213		ET40		1131A	1159P			347		L			
9	1491		ET40		839P	539X			488		M			
8	2291		ET40		859P	507X			486		N			
7	591		ET40		901P	534X			487		O			
6	1492		ET40		907P	527X			490		P			
5	2292		ET40		914P	537X			489		Q			
4	1493		ET40		915P	609X			492		R			
3	592		ET40		921P	604X			491		K			
2	1494		ET40		943P	557X			493		L			
1	2293		ET40		1014P	607X			494		M			

30 LINE THAT NEED TO PULL OUT FROM PRESIDIO

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DIVISION: POT/PRE

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SATURDAY AND COACH MILEAGE RECORD PAGE 7 OF 7

COUNT	TRAIN	HOLD	TYPE	PAND S	NTO	PULL OUT	PULL IN	CAR COACH	TBR ACK	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
9	3002		ET40			504A	617P			320		K			
8	3003		ET40			524A	1049P			334		L			
7	3004		ET40			541A	904P			348		M			
6	3005		ET40			630A	915P			356		N			
5	3006		ET40			705A	728P			364		O			
4	3007		ET40			715A	132X			365		P			
3	3009		ET40			749A	212X			378		Q			
2	3011		ET40			840A	113X			393		R			
1	3012		ET40			921A	811P			402		K			

SEE PAGE 7 FOR 30 LINE THAT NEED TO PULL OUT FROM PRESIDIO

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DIVISION: POTRERO

SERVICE : SUNDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
81	501		TC60		418A	108X			311		S			
80	502		TC60		438A	822P			314		T			
79	1401		TC60		442A	1014P			313		U			
78	3001		ET40		447A	754P			312		S			
77	2201		ET40		454A	1031P			315		T			
76	503		TC60		457A	922P			325		V			
75	504		TC60		458A	1031P			316		W			
74	1402		TC60		459A	115X			326		X			
73	1403		TC60		507A	601P			323		Y			
72	601		ET40		507A	1242X			317		U			
71	2202		ET40		514A	725P			322		V			
70	3301		ET40		516A	1111P			329		W			
69	505		TC60		516A	1046P			353		Z			

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DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SUNDAY AND COACH MILEAGE RECORD PAGE 2 OF 7

COUNT	TRAIN	HOLD	TYPE	PANDOS	PULL OUT	PULL IN	CAR COACH	TRACK BREAK	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
68	1405		TC60		521A	1022P			332		S			
67	1404		TC60		523A	1242X			335		T			
66	602		ET40		525A	134X			328		X			
65	2203		ET40		534A	923P			336		Y			
64	1406		TC60		537A	946P			337		U			
63	603		ET40		545A	716P			333		Z			
62	3302		ET40		546A	853P			339		S			
61	3303		ET40		546A	148X			341		T			
60	2204		ET40		551A	116X			343		U			
59	1407		TC60		601A	807P			346		V			
58	1408		TC60		601A	706P			347		W			
57	604		ET40		604A	137X			342		V			
56	2205		ET40		606A	823P			350		W			
55	506		TC60		612A	123X			354		X			

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DIVISION: POTRERO

SERVICE : SUNDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTOS	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
54	1409		TC60		620A	202X			351		Y			
53	605		ET40		624A	1257X			352		X			
52	507		TC60		634A	714P			359		Z			
51	2206		ET40		635A	658P			360		Y			
50	508		TC60		655A	1103P			344		S			
49	1410		TC60		658A	1122P			361		T			
48	607		ET40		707A	117X			357		Z			
47	510		TC60		713A	804P			363		U			
46	2207		ET40		716A	757P			368		S			
45	606		ET40		726A	949P			367		T			
44	1411		TC60		729A	732P			370		V			
43	3008		ET40		730A	941P			369		U			
42	509		TC60		733A	1022P			375		W			
41	511		TC60		738A	135X			373		X			

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____ (DAY / DATE)

DIVISION: POTRERO

SERVICE : SUNDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTS O	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
40	3304		ET40		744A	1255X			371		V			
39	2208		ET40		751A	1023P			372		W			
38	3013		TC60		818A	700P			382		Y			
37	3010		ET40		819A	710P			384		X			
36	608		ET40		819A	729P			381		Y			
35	2209		ET40		823A	908P			380		Z			
34	1412		TC60		825A	937P			391		Z			
33	3015		TC60		832A	708P			394		S			
32	3017		TC60		841A	717P			395		T			
31	512		TC60		841A	734P			392		U			
30	3019		TC60		847A	734P			396		V			
29	3014		TC60		853A	615P			397		W			
28	2210		ET40		854A	1133P			399		S			
27	3016		TC60		903A	624P			398		X			

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DIVISION: POTRERO

SERVICE : SUNDAY

COACH ASSIGNMENT, OPERATOR REPORT AND COACH MILEAGE RECORD

COUNT	TRAIN	HOLD	TYPE	PAN DTOS	PULL OUT	PULL IN	CAR COACH	TBR EAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
26	3018		TC60		913A	633P			400		Y			
25	3020		TC60		923A	642P			403		Z			
24	2211		ET40		924A	611P			406		T			
23	1413		TC60		927A	227X			376		S			
22	3305		ET40		927A	1013P			407		U			
21	3021		TC60		933A	651P			408		T			
20	609		ET40		937A	750P			405		V			
19	3306		ET40		943A	121X			404		W			
18	610		ET40		950A	749P			411		X			
17	513		TC60		953A	853P			414		U			
16	1414		TC60		955A	150X			410		V			
15	1415		TC60		1003A	255X			416		W			
14	3022		TC60		1006A	725P			420		X			

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____
DAY DATE

DIVISION: POTRERO

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SUNDAY AND COACH MILEAGE RECORD PAGE 6 OF 7

COUNT	TRAIN	HOLD	TYPE	PAND TSO	PULL OUT	PULL IN	CAR COACH	TBREAR CTH	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
13	2212		ET40		1013A	1227X			417		Y			
12	3307		ET40		1023A	119X			422		Z			
11	3023		ET40		1111A	152X			361		S			
10	2213		ET40		1131A	1159P			347		T			
9	1491		ET40		839P	539X			488		U			
8	2291		ET40		859P	507X			486		V			
7	591		ET40		901P	534X			487		W			
6	1492		ET40		907P	527X			490		X			
5	2292		ET40		914P	537X			489		Y			
4	1493		ET40		915P	609X			492		Z			
3	592		ET40		921P	604X			491		S			
2	1494		ET40		943P	557X			493		T			
1	2293		ET40		1014P	607X			494		U			

30 LINE THAT NEED TO PULL OUT FROM PRESIDIO

SIGNUP : 2018 SPRING | EFFECTIVE: 02-24-2018 | FOR _____ _____ 20____
DAY DATE

DIVISION: POT/PRE

COACH ASSIGNMENT, OPERATOR REPORT
SERVICE : SUNDAY AND COACH MILEAGE RECORD PAGE 7 OF 7

COUNT	TRAIN	HOLD	TYPE	PANDTOS	PULL OUT	PULL IN	CAR COACH	TBRACKT	RUN NUM	OPERATOR REPORT	CODE ACS	VEH MILE EXCP	LPO	EPI
9	3002		ET40		504A	617P			320		S			
8	3003		ET40		524A	1049P			334		T			
7	3004		ET40		541A	904P			348		U			
6	3005		ET40		630A	915P			356		V			
5	3006		ET40		705A	728P			364		W			
4	3007		ET40		715A	132X			365		X			
3	3009		ET40		749A	212X			378		Y			
2	3011		ET40		840A	113X			393		Z			
1	3012		ET40		921A	811P			402		S			

APPENDIX F:
SECURITY SENSITIVE INFORMATION PROCESS REGARDING TRACTION POWER STANDARD SPECIFICATIONS

GENERAL NOTES

- Disregard references to Housing and Commercial Component, as they are no longer part of the project.

SFMTA POTRERO YARD MODERNIZATION PROJECT

SENSITIVE SECURITY INFORMATION CONFIDENTIALITY AND NONDISCLOSURE AGREEMENT

RECITALS

A. On November 2, 2022, the City and County of San Francisco, through its Municipal Transportation Agency (SFMTA), and Potrero Neighborhood Collective LLC, a limited liability company organized under the laws of the State of Delaware (Lead Developer) entered into an agreement for predevelopment services (Predevelopment Agreement) for the SFMTA Potrero Yard Modernization Project (Project).

B. The Project is a joint development project that includes the design, construction, financing, operation, and maintenance of an infrastructure facility to be comprised of at a transit facility for the SFMTA's fleet of electric trolley buses (Bus Yard Component) and common infrastructure to be shared by the Bus Yard Component and a housing and commercial component or other use.

C. The SFMTA wishes to share with Lead Developer certain drawings and specifications related to the SFMTA's traction power system and related design elements, which are marked as Sensitive Security Information" or "SSI Documents" are confidential and protected from public disclosure under federal law. See 49 CFR Parts 15 and 1520; Lead Developer re uires these SSI Documents for design work on the Pro ect's Bus Yard Component.

D. The disclosure of SSI Documents to unauthorized persons is a violation of federal law, may cause irreparable damage to the SFMTA, and may threaten or compromise the security of the traveling public, transit employees, or transit infrastructure.

E. SFMTA will make available SSI Documents in connection with the Project to Lead Developer (SSI Recipient), subject to the following terms and conditions.

AGREEMENT

1. Acknowledgment. By signing this Agreement, SSI Recipient acknowledges that the disclosure to the public of any documents denoted as SSI would cause security risks that may cause irreparable damage to the SFMTA, and may threaten or compromise the security of the traveling public, transit employees, or transit infrastructure. The SFMTA will make the following SSI Documents available to the SSI Recipient:

1. Sample construction specification 16121 – Traction Power Cable, August 2023
2. Sample construction specification 16180 – DC Trolley Switch and Catenary Detection, August 2023
3. Sample construction specification 16312 – Traction Power Substation, August 2023
4. Sample construction specification 16790 – Traction Power SCADA System, August 2023
5. Central Subway Chinatown Station Drawings, dual feed traction power substation, 2012
6. King Substation Upgrade Drawings, single feed traction power substation, 2017
7. King Substation Upgrade construction specifications, traction power substation upgrade, 2017
8. King Substation Upgrade, surge arrest final design, 2022

2. **Agreements**. By signing this Agreement, SSI Recipient agrees to the following:

2.1. **Non-Disclosure of SSI Documents**. SSI Recipient shall not disclose to any person or firm any SSI Document without the prior express written consent of the SFMTA, which consent shall be by Kerstin Magary, Section Director, CSO Facilities and Real Property Manager or her designee, and without such person or firm executing a Confidentiality and Nondisclosure Agreement attached as Exhibit A to this Agreement.

2.2. **Use of SSI Documents**. SSI Recipient shall use SSI Documents provided by the SFMTA only for the following purpose: to assess whether they are applicable to be incorporated into the Pro ect's bus yard infrastructure, and if so, to then incorporate them into the design of the Bus Yard Component.

2.3. **Reproduction and Cover/Removal of Markings Prohibited**. SSI Recipient shall not copy or otherwise reproduce SSI Documents without express written authorization from the SFMTA. SSI Recipient shall not cover, remove or otherwise hide from display markings identifying SSI Documents as Sensitive Security Information.

2.4. **Safeguards Against Unauthorized Disclosure of SSI.** With respect to SSI, SSI Recipient shall implement the following safeguards and procedures to prevent the unauthorized disclosure of SSI. SSI Recipient shall designate a responsible managing employee or responsible managing officer as its Sensitive Security Information Handler (SSIH), who shall ensure that all safeguards are maintained, including the following:

(a) Ensuring that the SSI Documents are properly marked as required under federal law.

(b) Providing authorized employees and consultants adequate instructions with regard to the use and disclosure of SSI, including obtaining the employees' signed Confidentiality and Nondisclosure Agreement forms (Exhibit A).

(c) Implementing safeguards to restrict copies and reproductions of SSI in any form, including, but not limited to, paper copies and electronically formatted copies. SSI Recipient's SSIH shall authorize copies of portions of SSI only on a need-to-know basis, as determined by SFMTA, and shall retrieve all such copies upon completion of the task for which they were required. Copies and reproductions of SSI shall not be made for or retained for distribution to any third party unless the third party has complied with the requirements of Section 2.1. SSI Recipient shall identify each copy of SSI released by copy number and maintain a record of all copies of SSI released to employees and third parties on the Log of Copies of SSI provided as Exhibit B.

3. **SSI Documents Taken Off SFMTA Premises**. If the SFMTA provides SSI Recipient copies of SSI Documents and allows said documents to be removed from SFMTA premises, the SSI Recipient shall maintain said documents in a secure location and shall use them only for the purposes described in this Agreement. Upon request of the SFMTA, SSI Recipient shall certify that all SSI Documents have been returned to the SFMTA or destroyed by shredding.

4. **Unauthorized Disclosure or Loss of SSI Documents**. SSI Recipient agrees that if at any time he/she misplaces or loses control over SSI Documents in his/her custody or inadvertently provides access to persons or parties not authorized by the SFMTA to receive SSI Documents, the SSI Recipient shall notify the SFMTA immediately (i.e., no later than 24 hours) upon discovery that an unauthorized disclosure or loss of control of SSI Documents has occurred. Such notice shall be given orally and in writing, and shall provide all details that are available regarding the event. The oral notices shall be given by telephone to

Kerstin Magary at (415) 608-3004. The written notices shall be mailed to Kerstin Magary at the SFMTA address listed in paragraph 10, below. The SFMTA will investigate the facts underlying SSI Recipient's disclosure or loss of control over SSI Documents. In the event that the SFMTA determines that such unauthorized disclosure or loss of control constituted an unauthorized disclosure or improper use of SSI Documents by SSI Recipient, the SFMTA may pursue remedies as set forth in Section 6.

5. **Ownership of Sensitive Security Information**. Recipient agrees that all SSI Documents provided to the SSI Recipient will at all times remain the property of the SFMTA, which retains all rights to them.

6. **SFMTA Remedies**. SSI Recipient acknowledges that the unauthorized disclosure or improper use of SSI Documents by Recipient may cause irreparable harm to the SFMTA and the public. The SFMTA retains all of its legal rights and remedies to enforce this Agreement. Furthermore, SSI Recipient acknowledges that the SFMTA is entitled to seek equitable remedies, including temporary and permanent injunctive relief, without the necessity of posting a bond or other security, to enforce this Agreement. No remedy or election under this Agreement shall be deemed exclusive but shall, whenever possible, be cumulative with all other remedies at law or in equity.

7. **Attorneys' Fees**. In the event that a suit or other legal action is necessary to enforce any of the provisions herein contained, the prevailing party shall be entitled to reasonable attorneys' fees in addition to costs.

8. **Assignment**. SSI Recipient shall not assign any rights or transfer any obligation under this Agreement without the express written consent of the SFMTA.

9. **Severability**. Should the application of any provision of this Agreement to any particular facts or circumstances be found by a court of competent jurisdiction to be invalid or unenforceable, then (a) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (b) such provision shall be enforced to the maximum extent possible so as to effect the intent of the parties and shall be reformed without further action by the parties to the extent necessary to make such provision valid and enforceable..

10. **Notices**. All written communications sent by the parties may be by U.S. mail, e-mail or by fax, and shall be addressed as follows:

To SFMTA:

Kerstin Magary
Section Director, CSO Facilities and Real Property Management
1 South Van Ness Ave., 8th Floor, #8191
San Francisco, CA 94103
Kerstin.Magary @sfmta.com

To SSI Recipient:

Name:
Address:
Phone:
Email:

Any notice of default must be sent by registered mail or by personal service.

11. **Applicable Law**. This Agreement shall be governed by, and construed and interpreted in accordance with the laws of California. Venue for any action arising from this Agreement or related thereto shall be in courts located in San Francisco, California.

12. Successors. This Agreement shall be binding on and inure to the benefit of SSI Recipient's successors or assigns.

IN WITNESS WHEREOF, the SSI Recipient has caused this Agreement to be duly executed in San Francisco, California.

Dated: _____

SSI Recipient:

_____
Signature
Name (please print)

_____

Title:

_____
Name, business address, and phone number of SSI Recipient:

_____

_____

_____

EXHIBIT A

NON-DISCLOSURE CONSENT FORM
to be executed by Employees of SSI Recipient or Third Party

Firm Name: _____

Employee Name: _____

Employee Address: _____

I agree that any disclosure to me of information designated as Sensitive Security Information pertaining to the San Francisco Municipal Transportation Agency (SFMTA) SFMTA Potrero Yard Modernization Project (the Project), will be subject to the following obligations:

1. I have received, read, and understand: (1) FTA Resource Document for Transit Agencies – SSI Designation, Markings, and Control; and (2) TSA Sensitive Security Information Best Practices Guide for Non-DHS Employees and Contractors.

2. I confirm that I have been provided a copy of the Confidentiality Agreement between the SFMTA and SSI Recipient. I confirm that I will comply at all times with the SSI Recipient's obligations in relation to the SSI Documents as set out in the Confidentiality Agreement, and will not do anything that would or could jeopardize any of the SSI Recipient's obligations in relation to the SSI Documents, or lead to a breach or compromise of the security of the SSI Documents.

3. I will not disclose or permit disclosure of the SSI Documents, or permit anyone to use the SSI Documents, without the prior written approval of the SSI Recipient's Sensitive Security Information Handler and the SFMTA.

4. The above obligations of confidentiality and non-use will apply to my work on the Project, and will continue to apply without limitation of time after the date of termination of my work.

Executed by:

_____	_____
Employee Signature	**SSI Handler**
_____	_____
Date	**Date**

EXHIBIT B

LOG OF COPIES OF CONFIDENTIAL INFORMATION

SSI Recipient: _____

SSI Recipient: SSI Handler (SSIH): _____

Copy Number	Date Copy Made	Description	Employee or Third Party in Receipt of Copy	Date Copy Returned to SSIH

APPENDIX G:
PG&E SYSTEM IMPACT STUDY REPORT FOR MIXED USE SERVICE APPLICATION (FOR REFERENCE)

GENERAL NOTES

- Disregard references to Housing and Commercial Component, as they are no longer part of the project.

System Impact Study Report

Load Interconnection

WDT – City & County of San Francisco

2500 Mariposa St (Mix), San Francisco, CA 94110

Pacific Gas and Electric Company®

February 6, 2023

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Introduction

SFPUC has submitted a request to Pacific Gas & Electric Co for a new primary electric service located on 2500 Mariposa St (Mix), San Francisco. The requested maximum net three phase electrical load demand for this service is estimated to be 7.8 MW. The customer's proposed Commercial Operation Date (COD) is Q3 2023.

The System Impact Study (SIS) will analyze the:

1. Request by SFPUC to interconnect a new electrical load demand of 7.8 MW.
2. System reinforcements necessary to mitigate the adverse impacts of the new load.
3. Facilities required for system reinforcements with a non-binding good faith estimate of cost responsibility and a non-binding good faith estimated time to construct.

This SIS will form the basis by defining the scope, content, assumptions, and terms of reference.

The SIS assumes no additional generation, renewables or otherwise, will be installed at the site. Should SFPUC wish to install generation, renewable or otherwise, at the site in the future, an application is required pursuant to the WDT.

Project and Interconnection Information

Table 1 below lists the general information about the Project as provided by the Customer.

Table 1: Project General Information

Project Location	2500 Mariposa St (Mix)
PG&E Planning Area	San Francisco
Maximum Load	7.80 MW
Power Factor	The Distribution Provider's initially required corrected Power Factor (Section 20.4 of Tariff and Section 13.3 of this Service Agreement) will be as follows. Peak Load PF 95% @ 12:00 PM to 6:00 PM: ± 0.01 Minimum Load PF 95% @ 6:01 PM to 11:59 AM: ±0.02
Connection Voltage	12 kV
Primary Service Entrance	PG&E approved Phase and Ground protection

Figure 1: Location of Facility

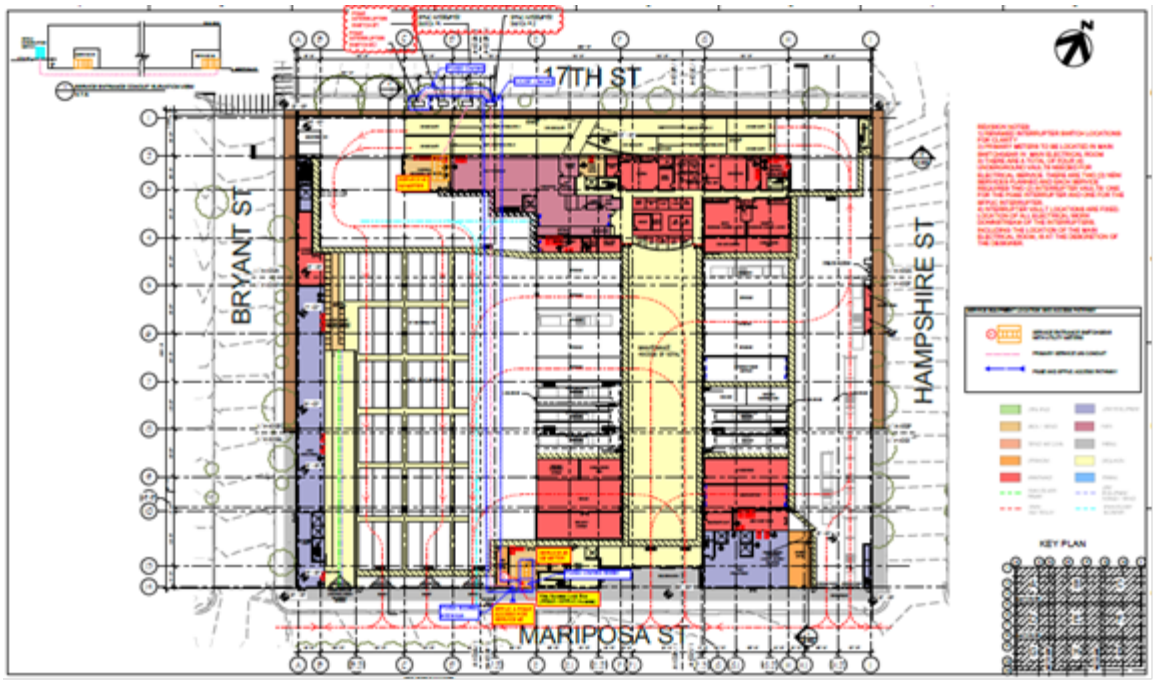
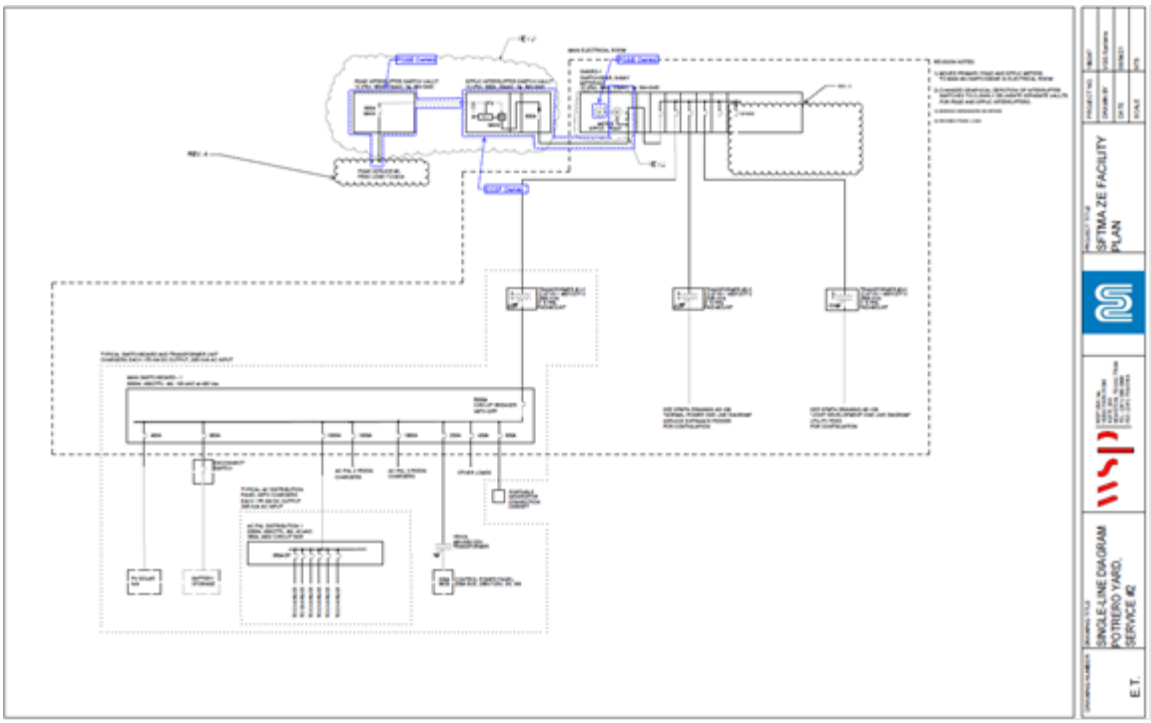


Table 2: Estimated Demand Profile of Facility

FEEDER 2 / MIXED USE

Winter	Residential	Commercial	BEB	Total (kW)
12:00 AM	1749.4	1975.1	2550.0	6274.4
1:00 AM	1582.2	1649.6	2281.0	5512.8
2:00 AM	1634.4	1581.6	2328.8	5544.9
3:00 AM	1737.0	1548.0	2121.2	5406.2
4:00 AM	1924.8	1732.1	1755.7	5412.7
5:00 AM	2167.0	2173.3	1496.2	5836.4
6:00 AM	2628.2	2707.0	1276.3	6611.5
7:00 AM	3010.6	2701.7	1012.7	6725.0
8:00 AM	2920.2	2704.5	750.4	6375.2
9:00 AM	2679.9	2606.2	424.1	5710.2
10:00 AM	2421.1	2542.7	240.7	5204.5
11:00 AM	2410.7	2840.4	182.0	5433.2
12:00 PM	2347.9	3003.7	107.9	5459.5
1:00 PM	2325.5	3316.2	19.6	5661.2
2:00 PM	2286.9	3631.5	0.0	5918.4
3:00 PM	2249.6	3778.8	0.0	6028.4
4:00 PM	2494.4	4329.2	0.0	6823.6
5:00 PM	2825.0	4823.7	0.0	7648.7
6:00 PM	2952.2	4900.0	0.0	7852.2
7:00 PM	3000.0	4799.3	0.0	7799.3
8:00 PM	2944.6	4611.1	64.1	7619.8
9:00 PM	2677.2	3979.9	681.0	7338.0
10:00 PM	2355.6	3361.0	1645.8	7362.4
11:00 PM	2066.5	2606.2	2461.0	7133.7
		4900.0		7852.2

Figure 2: Electrical Single Line Diagram of Facility



Study Assumptions

The infrastructure and protection evaluation will identify any new PG&E substation facilities or distribution upgrades necessary to interconnect the Customer's facility using the following assumptions:

1. The maximum net electrical load demand to be served at 2500 Mariposa St (Mix) is 7.80 MW.
2. The customer will engineer, procure, construct, own, and maintain its project facilities up to the intervening facility.
3. The study will consider all PG&E distribution projects in the Project vicinity.

PG&E has estimated a study fee of $25,000 for performing the SIS based upon the scope of this study plan. The final cost to complete the SIS will be based on actual cost.

PG&E will provide the SFPUC a record of actual costs for performing this SIS roughly two months after the SIS is completed. PG&E will bill the SFPUC the remaining balance if the actual cost is higher than the estimated $25,000. If the actual cost is less than the estimated study fee, PG&E will return the balance to the SFPUC within thirty (30) days of such determination.

Evaluation of Distribution Interconnection

PG&E's Distribution Planning Department evaluated the capability of the existing distribution system to serve the maximum load at 2500 Mariposa St (Mix).

Infrastructure Scope and Feasibility: To mitigate forecasted overloads triggered by the new primary service load, it is required to install and extend a new 12 kV distribution feeder from Potrero Substation. The scope is the following: installing a new 12 kV breaker and IPAC relay package at Potrero Substation, extending new mainline cable from the breaker to an existing 6" conduit system on Illinois St and 23rd St, installing ~9,500 ft of 1100 AL EPR in existing 6" conduits up to 17th St and Arkansas St, and trenching and installing additional 1100 AL EPR up to 17th and Hampshire St. Additional 1100 AL EPR will be installed along 6" conduits to land on a new 600 Amp switch – interrupter – switch in a #7 box. 600 AL EPR will be installed from the PG&E interrupter to the SFPUC interrupter to feed 2500 Mariposa St (Mix). A tie will be installed between each PG&E switch-interrupter-switch serving 2500 Mariposa loads.

Distribution reinforcement details are as follows:

Install New Feeder at SF A Substation and Line Extension	$ Cost
Direct Assignment Facilities:	
Tie-in Electric Service to New Feeder (12 months)	
Install 600 Amp switch-interrupter-switch in #7 box	$120,000
Trench and install ~20 ft of 600 AL EPR in 6" conduit + 6" spare	$15,600
Distribution Upgrades:	
Install New Substation Transformer (48 months)	
Install 75 MVA 115/12 kV transformer and switchgear at SF A Substation (Ongoing)	$0
Install new 12 kV bus section and switchgear at SF A Substation (Ongoing)	$0
Install New Feeder at SF A Substation and Line Extension (36 months)	
Install new feeder breaker and associated IPAC relay package	$950,000
Install 600 Amp 3-way 3-way switch	$80,000
Trench and install ~300 ft of 1100 CU LSZH + 3 6" spare conduits	$330,000
Trench and install ~200 ft of 1100 AL EPR in 6" conduit + 3 6" spares	$156,000
Install ~9,500 ft of 1100 AL EPR in existing 6" conduit	$5,700,000
Trench and install ~2,900 ft of 1100 AL EPR in 6" conduit + 6" spare	$2,262,000
Install ~600 ft of 1100 AL EPR in 6" conduit	$360,000
Estimated Cost	$9,973,600

Figure 3: Proposed Distribution Scope

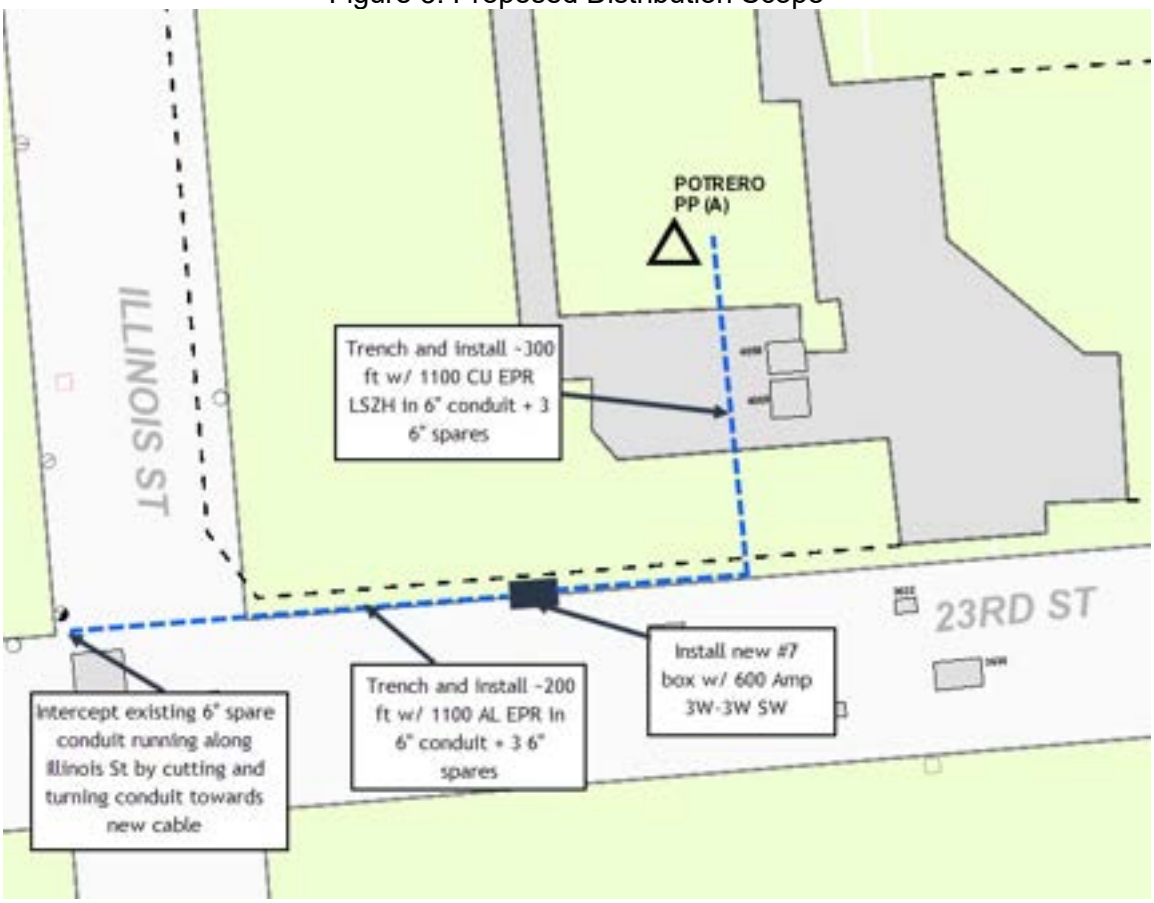


Figure 4: Proposed Distribution Scope

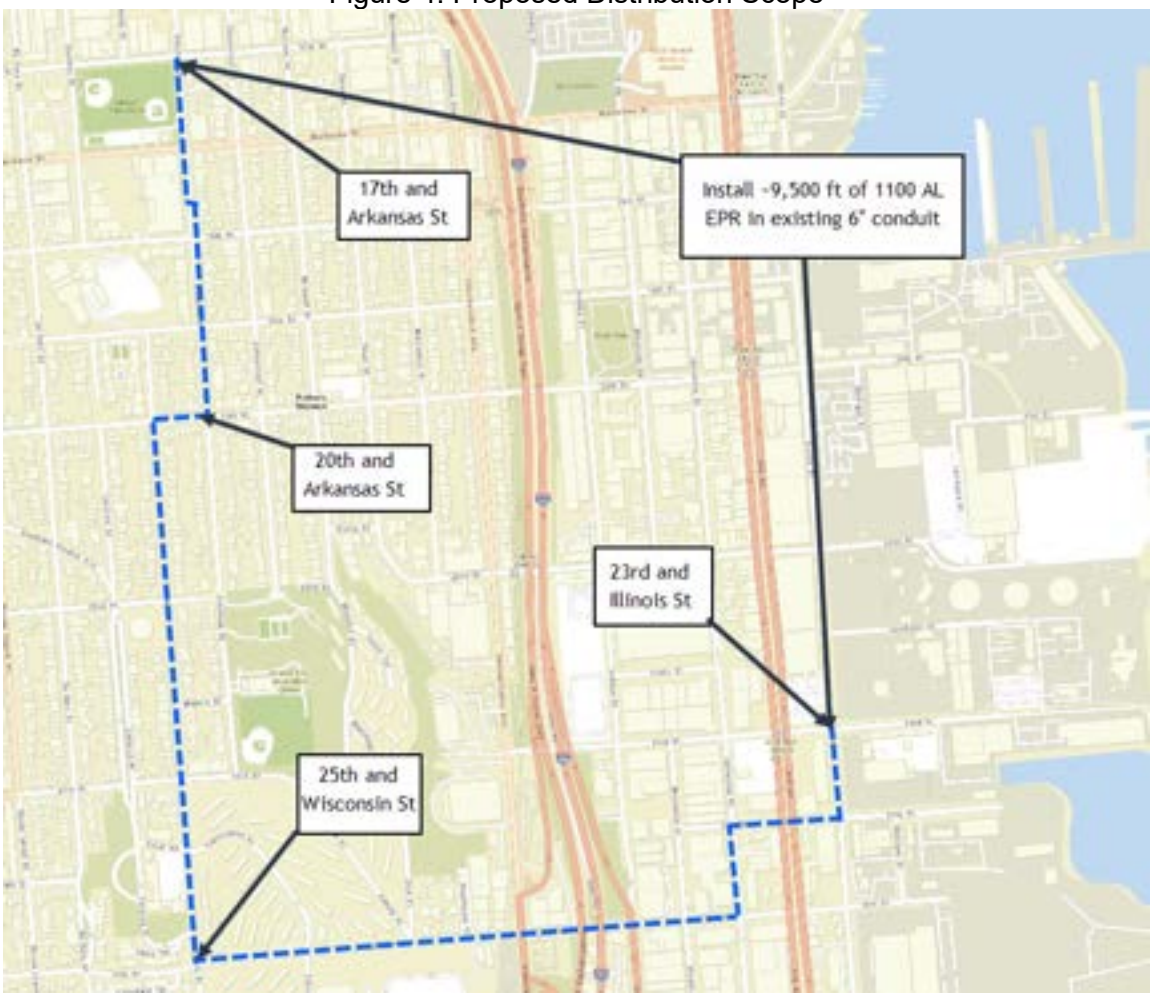


Figure 5: Proposed Distribution Scope



Figure 6: Proposed Distribution Scope



Figure 7: Proposed Distribution Scope

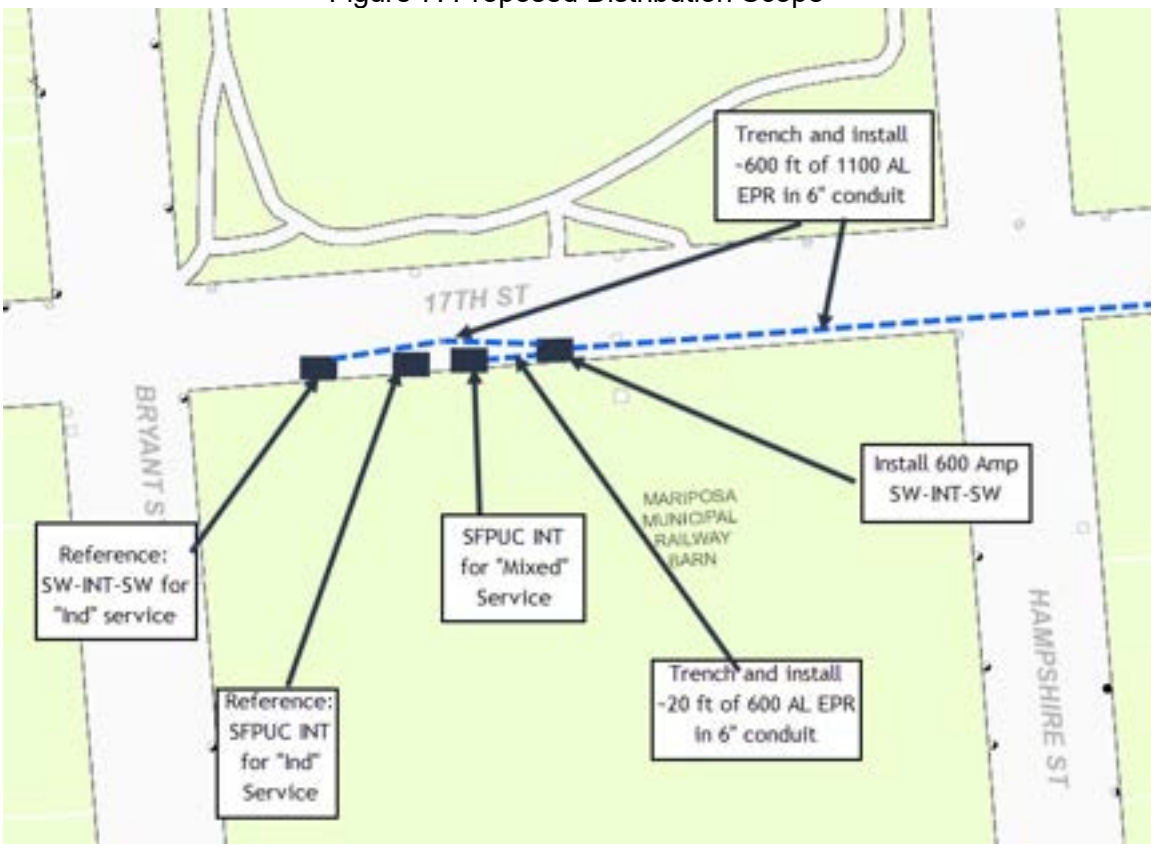
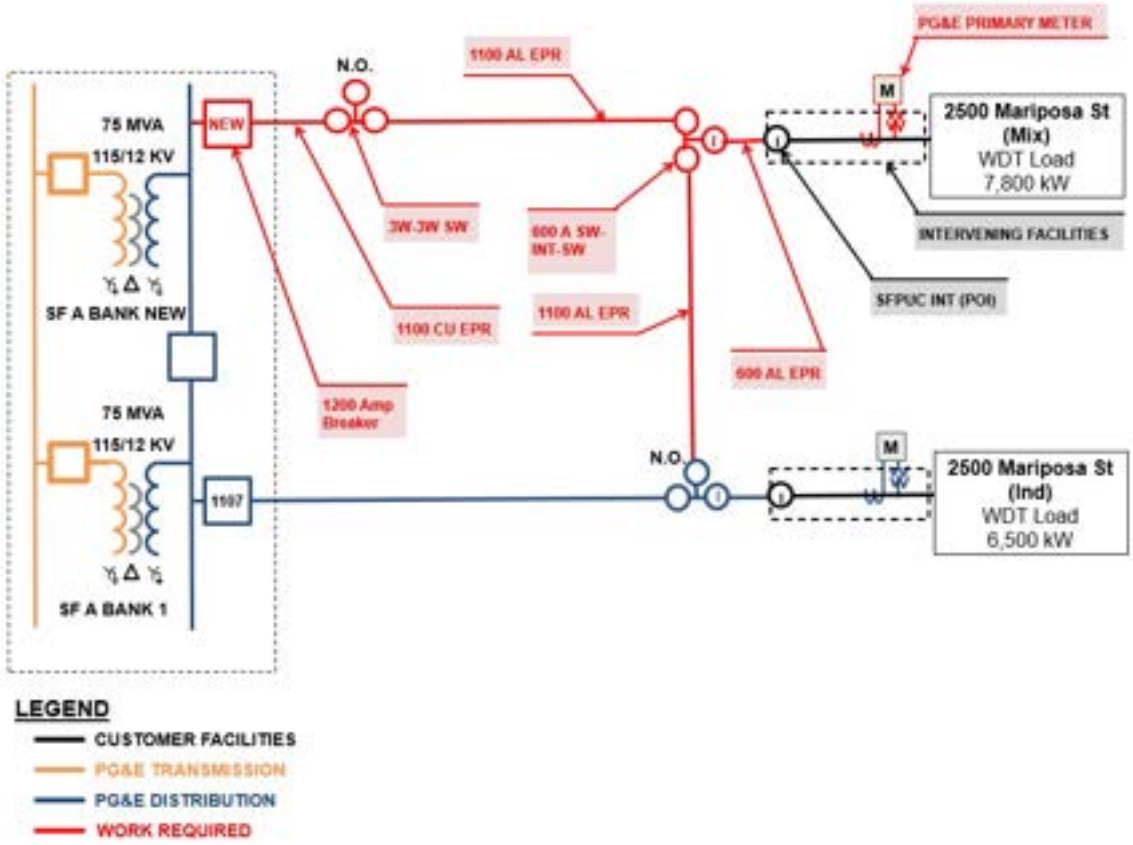


Figure 8: Single Line Diagram



Cost Estimates

Costs provided in this report are non-bMixing good faith cost estimates only. These costs have little degree of accuracy and are provided for informational purposes only.

Cost estimates will be provided, if applicable, when the Project progresses to the Facilities Study. Charges for implementing these interconnections and facility modifications, if the SFPUC decides to proceed, will be made based upon the actual costs incurred.

Ownership of Facilities

If this SIS determines that equipment needs to be installed in SFPUC's facilities, such installation will be the responsibility of SFPUC. Any equipment found to be required within PG&E's facilities will be the responsibility of PG&E, and the terms of the WDT will determine who is financially responsible to pay for such equipment.

Technical Requirements

In addition to interconnection requirements listed in this SIS, the electric and gas service requirements, and policies for establishing electric or gas service for new or remodeled customer installation are detailed in PG&E's Greenbook. The PG&E Greenbook provides detailed connection requirements for grounding and safety, among other requirements. A copy of the PG&E Greenbook can be downloaded under the following website: http://www.pge.com/greenbook/

1. Metering

Metering will be measured at the "change in ownership" point. It is the responsibility of SFPUC to provide the necessary structures, substructures, foundations, and disconnect switches for mounting and connection of the metering transformer. The meter location and grounding must meet all the requirements of IEEE80 for equipment safety and touch and step potential protection. Specific design details should be presented for review and approval prior to construction.

2. Voltage Regulation

SFPUC should specify tap ratios for its transformers to support appropriate low-side voltage.

3. Power Factor

SFPUC will be obligated to meet its power factor requirements as outlined in WDT.

Study Updates

The SIS will be performed in accordance with the assumptions listed in the Section titled "Study Assumptions". If these assumptions become invalid, an updated study may be required to re-evaluate SFPUC's interconnection impact on PG&E's electric distribution system. Changes that might prompt an updated study are:

1. Change in the interconnection date or the timing of subsequent load additions.
2. Change in the projected amount of initial load or subsequent loads.
3. Change in the interconnection plan.

The SFPUC would be responsible for paying for any such updating study.

APPENDIX H:
SDAT REVIEW LETTER 1.19.2023
(FOR REFERENCE)

GENERAL NOTES

- Disregard references to Housing and Commercial Component, as they are no longer part of the project.

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

SDAT REVIEW LETTER

Date: 1/19/2023

Project Address: 2500 Mariposa Street
Planning Record Number: 2019-021884PRJ
Assigned Planners: Mat Snyder, Gabriela Pantoja, Jennifer McKellar, Trent Greenan, Patrick Race

The Street Design Advisory Team (SDAT) provides design review and guidance to projects working within the City's public right-of-way. SDAT is composed of representatives from the San Francisco Planning Department (SF Planning), the San Francisco Fire Department (Fire), San Francisco Public Works (Public Works), the San Francisco Municipal Transportation Agency (SFMTA), and the San Francisco Public Utilities Commission (SFPUC).

SDAT REVIEW HISTORY:

1st Review	2nd Review	3rd Review
May 11, 2020	November 15, 2022	

Below are the SDAT comments from the 2nd SDAT review.

PROJECT DESCRIPTION:

The proposal is to rebuild, expand, and modernize the Potrero Yard Muni Bus Maintenance Facility located at 2500 Mariposa Street, (bounded by Mariposa Street, Hampshire Street, Bryant Street and 17th Street), and replace it with an approximately 145-foot, mixed-use building with a four-story bus garage and eight levels of residential for a total area of 1,300,000 square feet. Of the 1,300,000 square feet, 723,000 square feet will be dedicated to the public facility, 544,000 square feet for the residential use (575 dwelling units), and 33,000 square feet of commercial space at the ground floor. The proposal includes two new curb cuts along Mariposa Street, new ADA ramps at all four intersections, 42 street trees, 37 Class 2 bicycle parking spaces, and three new bulbouts.

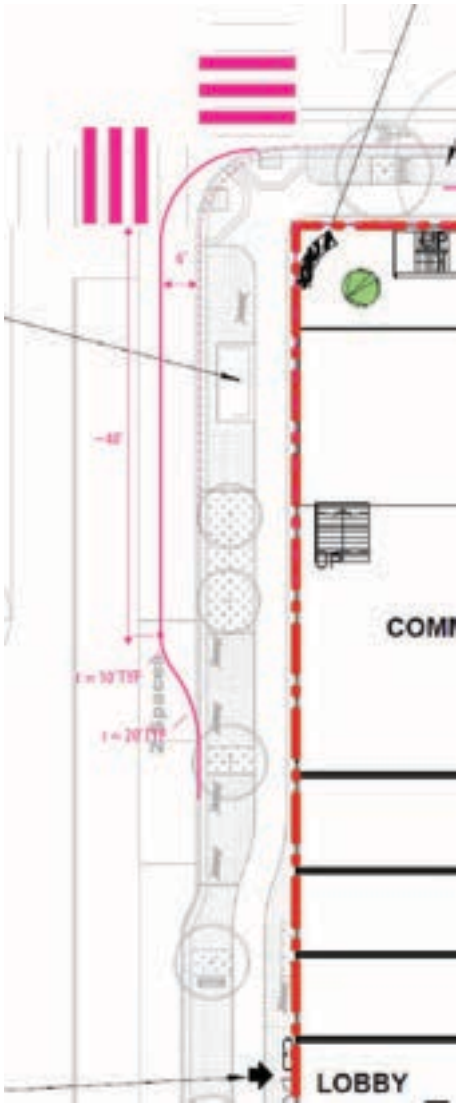
CONDITIONS REQUIRING STREET DESIGN REVIEW:

☒ Planning Code 138.1 (required streetscape improvements per the Better Streets Plan)
☒ Vision Zero
☐ Other:

SDAT COMMENTS

1. Bulbout (required per Planning Code Sec. 138.1)

- SDAT appreciates the addition of bulb-outs projecting into Bryant Street and Hampshire Street at the Mariposa Street intersection, and projecting into Hampshire Street at the 17th Street intersection, per May 11, 2020, SDAT comments. Given the high volume of bus movements to/from the project site, it is critical that all bulbs are analyzed for bus turning movements – particularly right turns from southbound Hampshire Street to westbound Mariposa Street (and into bus yard entry), from westbound Mariposa Street to northbound Bryant Street and from eastbound 17th Street to southbound Hampshire Street.
- SDAT recommends coordinating with SFMTA to confirm future plans for the bus stop at this intersection and installing a transit bulb out projecting into Bryant Street at the 17th Street intersection if the bus stop will remain. This may require the shifting of loading south of the transit bulb. Please coordinate with SFMTA on the layout and provision for a transit shelter, if applicable.



Transit Bulb into Bryant Street at SE corner of 17th Street

- The project is responsible for any utility work associated the construction of the bulb-out including potential work related to the relocation of the high-pressure fire hydrant shut-off valve if needed.

- Turn Templates: With your next submission to SDAT, please submit the following turn templates for all bulbouts and intersections. Note that turn templates must be approved by SDAT prior to Planning entitlement.
    - AASHTO 2011 WB-40
    - AASHTO Bus 45
    - Custom SFMTA 60' Bus
    - Custom SFFD Engine
    - Custom SFFD Ladder

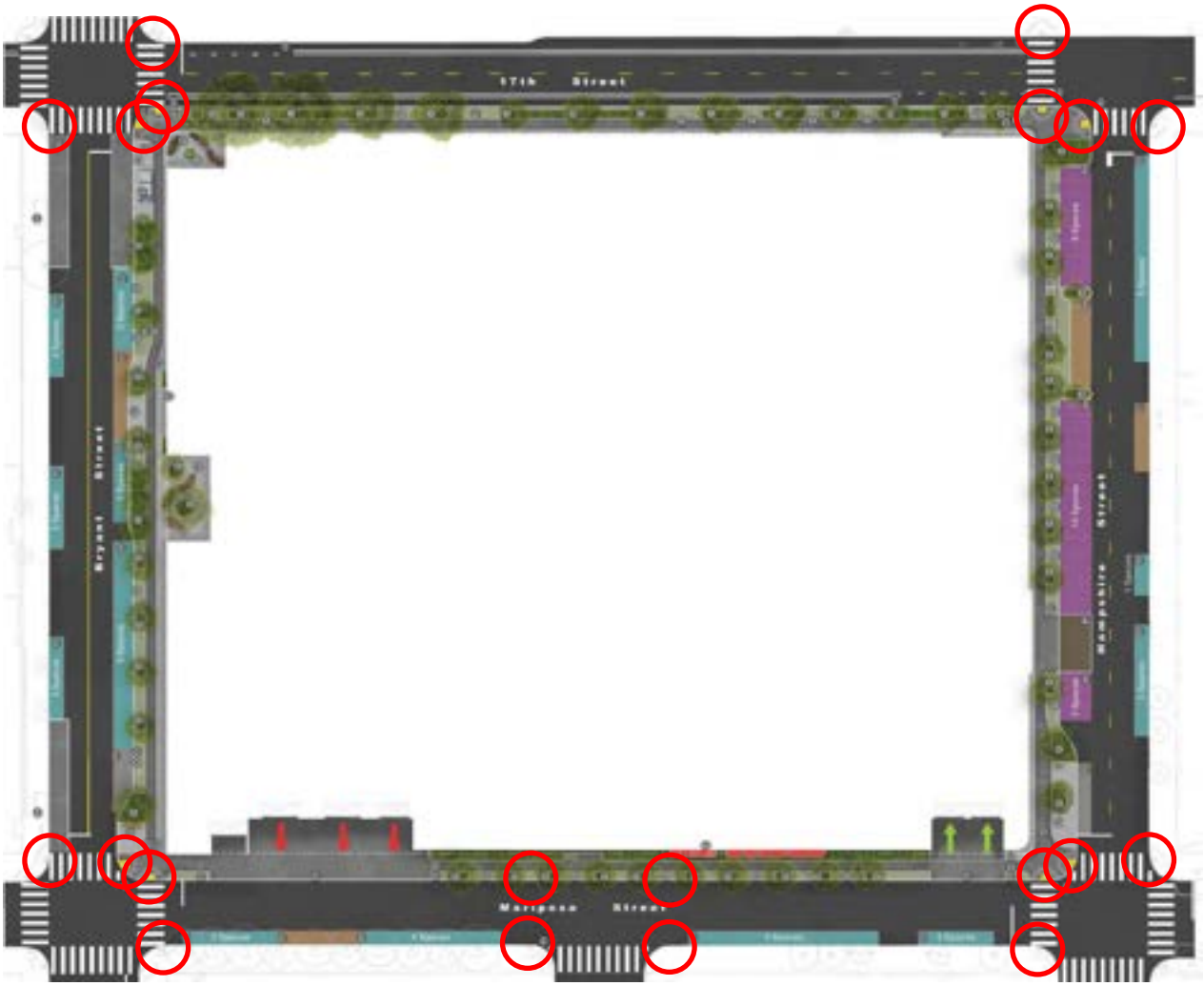
Follow-up for Bulbouts	Pre-entitlement/Next SDAT • Sponsor to submit revised plans to SDAT showing required bulbout(s) as any relevant turn templates • Bulbout curb returns shall conform to SF Public Works' Standard Plan for Curb Bulbs. See: http://sfpublicworks.org/sites/default/files/87%2C175.pdf Pre- or Post-entitlement • Obtain relevant permits from BSM www.sfpublicworks.org/services/permits

2. 17th St Street Frontage

- SDAT has significant concerns about the pedestrian and bicycle experience and safety along the 17th Street frontage, given how the building is designed now with a blank wall and inactive frontage. This is especially concerning given that this is the frontage facing onto the park, and given how unsafe and unpleasant blank frontages on existing MTA facilities already have proven to be today (e.g., 15th, 16th, and Folsom Street frontages of the nearby Flynn Division, the Masonic Ave frontage of Presidio Yard, the Indiana St frontages of Woods Yard, and the San Jose and Ocean Ave frontages of Cameron Beach Yard).
- Given that this project is both a major and a public development project, its streetscape design should lead by example and be a model of the most up-to-date street design best practice. SDAT draws your attention to the following from the Better Streets Plan's governing Admin Code 98.1(d)(10): "Major new developments, both public and private, often include the rebuilding of portions of public right-of-ways and should serve as models of the Better Streets Policy. Special efforts should be made to ensure that such new developments lead by example. *Public projects should establish model street and open space designs and private projects should incorporate stronger street design and landscaping standards.*" If an inactive façade on 17th Street is unavoidable, the sidewalk and building façade design of 17th Street should be a model for how to design an important street with an inactive façade.
- We strongly encourage exploring all avenues for targeted building program and design modifications that could enable more active use of the 17th Street ground-floor. If the bus ramps are the primary barrier standing in the way of activation of 17th Street as currently designed, any feasible way to shift them inward should be explored, if it has not been already. Shifting them ~30' to the next structural bay would be ideal, if at all possible, and could even allow another liner of housing.
- At minimum, we request that you clearly describe and illustrate the design intent for the 17th Street frontage if active uses are not practical for the entirety of the frontage given the various requirements of the Project.

3. Accessible Curb Ramps (Required per Public Works Order No: 185854) and Accessibility Requirements

- The project is required to upgrade/install accessible pedestrian ramps at all street corners with existing curb ramps that do not comply with current City Standards, including the midblock crossing along Mariposa at York Street.
- See exhibit below for which illustrates red circles at curb ramp locations triggered by the project. Submit Existing Curb Ramp Inspections and corresponding photographs for all existing curb ramps proposed to remain as part of Street Improvement Permit.
- Construct new SE-R and NE-L curb ramps at York and Mariposa as part of this project. Revise site plan to show 6 directional curb ramps at this intersection. The midblock crosswalk(s) at York should be marked on the project plans.
- Public Works Order 184,350 requires sponsors installing ADA-compliant curb ramps at crosswalks to install receiving ramps at the opposite end of the crosswalk if none exist or if an existing ramp does not comply with current City standards. In addition to the ramps required along the project frontage, the project sponsor will be required to install new ramps on the receiving end of each crossing, if the existing receiving ramps do not comply with current City Standards.



Sidewalk Encroachments and Standard Paving Materials

- Set back elements from private plazas including benches so they do not encroach into the Public ROW. Revise design of the Bryant Street sidewalk accordingly to remove encroachments.

- Revise design to provide SF City Standard Sidewalk Paving Material from back of walk to the furnishing zone of the sidewalk. Eliminate proposed change in material at frontage zone. If the planned need is sidewalk tables and chairs, that can be handled with an approved BSM Tables and Chairs permit and movable pedestrian diverters.

- Remove proposed building frontage zones from sidewalk adjacent to bus stops and passenger loading zones. Building frontage zones may be problematic at these areas due to higher pedestrian use and potential for congestion.

Follow-up	Pre-entitlement/Next SDAT • Show conceptual ramp locations in future SDAT submittal. Pre- or Post-entitlement • Meet with the Public Works Disability Access Coordinator's Office to ensure ramp designs meet City standards. (Public Works Standard Curb Ramp Plans) • Obtain relevant permits from BSM
Contacts	Karina Lairet (karina.lairet@sfdpw.org), Public Works Disability Access Coordinator's Office

4. Curb Cuts (Required by Public Works and SFMTA)

- City policy prohibits curb cuts the sole purpose of which are used to transfer trash bin to and from the curb. Remove the proposed curb cut for waste collection on Hampshire Street.

5. Driveways & Garage Access

- Turn Templates: With your next submission to SDAT, please submit the following turn templates for all access points for buses into and out of the bus yard from Mariposa Street. Note that turn templates must be approved by SDAT prior to Planning entitlement.
    - AASHTO Bus 45
    - Custom SFMTA 60' Bus
    - Other expected design vehicle

Follow-up for curb cuts, driveways & garage access	Pre-entitlement/Next SDAT submittal • Submit loading demand analysis and loading operations plan • Submit turn templates for design vehicle
Contacts	Coordinate with your assigned Planner

6. On-street Loading

- It is unclear to SDAT who the on-street commercial loading is for on the south side of Mariposa Street and the east side of Hampshire Street.
- Commercial Loading: please detail commercial loading space lengths and intended design vehicle in next plan submittal.

- Passenger loading zones shall comply with accessibility requirements. Revise site plan to show proposed passenger loading zones (white curb) and revise layout to comply with Standard Accessible Passenger Loading Zone Drawings at the link below: https://sfgov.org/mod/sites/default/files/Documents/Bulletin10_PassengerLoadingZones.pdf
- On-site passenger loading requires a vertical clearance of not less than 114 inches and room to maneuver paratransit size vans in and out with turn around. Any planned valet parking requires an accessible passenger loading zone within the parcel.
- Bike racks are not permitted on sidewalk adjacent to passenger loading zones. Relocate bike racks accordingly.
- The project shall come back to SDAT prior to finalizing the project description for environmental review and the sponsor shall submit the project's loading needs analysis and a loading operations plan regarding both off-street and on-street loading operations. While developing the project description, the sponsor shall work with the project's environmental/transportation planner and with Paul Kniha (paul.kniha@sfmta.com), SFMTA Color Curb Program Manager, and Karina Lairet (karina.lairet@sfdpw.org), Associate Engineer with the Public Works Disability Access Coordinator, to discuss and revise the project's loading needs and corresponding accessibility requirements.

Follow-up	Pre-entitlement/Next SDAT • Sponsor to submit written statement to Planning expressing intention to follow-up on this item • Submit the project's loading needs analysis and a loading operations plan regarding both off-street and on-street loading operations • The project shall come back to SDAT prior to finalizing the project description for environmental review and the sponsor shall submit the project's loading needs analysis and a loading operations plan regarding both off-street and on-street loading operations. • If it has not happened already, meet with both SFMTA Loading Team & Public Works Accessibility Coordinator to coordinate design of loading zone(s), . Post-entitlement (Post-Certificate of Occupancy) • Sponsor to apply for on-street loading zones from the SFMTA permits from SFMTA https://www.sfmta.com/online-color-curb-application)
Contacts	Karina Lairet (karina.lairet@sfdpw.org), Associate Engineer with the Public Works Disability Access Coordinator Paul Kniha (paul.kniha@sfmta.com), SFMTA Color Curb Program Manager Jennifer McKellar (Jennifer.mckellar@sfgov.org), Senior Environmental Planner, SF Planning

7. Street Trees

- The project is required to install street trees along all frontages. Please coordinate with SF Public Works Bureau of Urban Forestry for guidance on spacing of tree basins.
- Per SFMTA standards, trees are not allowed within 25 feet of the corner property line on approach, but trees can be placed closer to the intersection on exit, to enhance pedestrian visibility and safety. One tree proposed along 17th Street approaching Hampshire should be verified it's not within 25 feet of the corner property line.

- Trees are generally not permitted at T-intersections with pedestrian mid-block crossings as is present at Mariposa and York. This is due to limited sightlines between pedestrians, bicyclists and vehicles approaching the crosswalk. Please coordinate with SF Public Works Bureau of Urban Forestry for guidance.
- The existing trees along all frontages shall remain unless determined otherwise by SF Public Works Bureau of Urban Forestry (BUF). Any proposed new, removed, or relocated street trees and/or landscaping within the public sidewalk may require a permit from SF Public Works Bureau of Urban Forestry (BUF).

Follow-up	Pre-entitlement/Next SDAT • Sponsor to submit written statement to Planning expressing intention to follow-up on this item • Submit plans that differentiate existing trees from new trees • Submit revised plans that address tree placement comments above Post-entitlement • Sponsor to obtain any required permits from Public Works Bureau of Urban Forestry (BUF)
Contacts	Public Works Bureau of Urban Forestry, urbanforestry@sfdpw.org, 628-652-8733

8. Street Lighting

- If existing lighting conditions on fronting the project site do not meet City standards, the project will be required to upgrade street lighting and/or pedestrian lighting. To determine if lighting improvements are required, the sponsor will need to provide photometric studies for street lighting plans to the SFPUC.
- Please coordinate with the SFPUC Streetlights Division on this item at Streetlights@sfwater.org. The sponsor shall submit written statement to SDAT expressing intention to follow-up on this item.

9. Transformer

- SDAT supports the proposed location of a transformer room. Confirm all location and access requirements with PG&E prior to submitting the final building designs to the Planning Department.

Follow-up	Pre-entitlement/Next SDAT • Sponsor to show proposed transformer locations on plans to be submitted and approved by SDAT • Coordinate with SFPUC or PG&E to ensure proposed transformer location meets relevant standards.
Contacts	• Transformer Location: Coordinate with your assigned Current Planner on this item • Transformer Location Technical Feasibility: Coordinate with electrical power utility (SFPUC or PG&E) and Public works BSM.

10. Waste Collection

- Please provide trash loading and removal strategy explaining how trash bins will be moved between the trash storage area and the street on pickup days.
- Provision for trash removal should not be in the public right-of-way as is indicated on the plans. Please update plans to reflect no incursion into the public right-of-way.

- See item #3. City policy prohibits curb cuts the sole purpose of which are used to transfer trash bin to and from the curb. Remove the proposed curb cut for waste collection on Hampshire Street.

Follow-up	Pre-entitlement/Next SDAT • Sponsor to submit trash loading and removal strategy to SDAT
Contacts	Coordinate with Recology to ensure proposed trash strategy is feasible

11. Outswing Doors

- Out-swinging doors on all project frontages shall be recessed from the plane of the exterior wall to prevent pedestrian traveling on the sidewalk from being struck by opening doors.

ADDITIONAL STREET DESIGN CONSIDERATIONS

12. Related City Projects – Area Plans/Public Realm Plans

- The project is located within the Eastern Neighborhoods Plan (Mission) and the Mission District Streetscape Plan. The project sponsor is encouraged to read both plans and integrate planning work done to date.
  - Eastern Neighborhoods Plan: https://generalplan.sfplanning.org/Mission.htm
  - Mission District Streetscape Plan: https://sfplanning.org/sites/default/files/archives/CDG/docs/missionstreets/MDSP_FINAL_DRAFT_OCT2010.pdf

13. 17th Street Bikeway

- SDAT encourages the project to consider a raised cycle track along the 17th Street frontage rather than an at-grade facility.

14. Hampshire Street Sidewalk

- 90-degree curb returns cannot be cleaned by Public Works mechanical street sweepers. Please revise curb returns to meet SF Public Works' Standard Plan for Curb Bulbs or confirm plans for street sweeping.

ADDITIONAL INFORMATION REQUIRED FOR NEXT SDAT REVIEW

☒ Existing/proposed curb cuts and curb cuts to be removed
☒ Street names
☒ Dimensions of existing and proposed sidewalk and curb extensions on plans
☒ Dimensions of existing and proposed curb cuts on plans
☒ Dimensions of existing and proposed transit stops
☒ Site plan with streetscape features (e.g., bulbouts, trees, transit shelters, benches, bike racks)
☒ Proposed street tree locations
☐ Adjacent ROW widths
☒ Locations of existing utility poles and hydrants
☒ Turn templates for bus yard access
☐ Curb-to-curb section, including dimensions of tree wells and path of travel
☐ Proposed transformer vault location
☒ A written statement clarifying that Standard SDAT Comments have been reviewed

STANDARD SDAT COMMENTS

For your next SDAT submittal, please review the "Standard SDAT Comments" which can be found on the SDAT website (https://sfplanning.org/project/street-design-advisory-team), and include a written statement clarifying that this task has been completed and that all plans are consistent with guidelines/standards enumerated in the "Standard SDAT Comments".

SDAT Members:

SF Public Works: Chris Buck, Berhane Gaime, Kevin Jensen, Jung Johnson, Karina Lairet, Eric Lam, Debra Lutske, Denny Phan, Suzanne Suskind, John Thomas, Michelle Woo, John Kwong, Jennifer Cooper

SFMTA: Paul Kniha, Westley Myles, Francesca Napolitan, Ricardo Olea, Mike Sallaberry, Norman Wong, Dustin White, Adam Smith

SF Planning: Kimberly Durandet, Nicholas Foster, Ryan Shum, Jessica Look, Ilaria Salvadori, Patrick Race, Ben Caldwell

SFPUC: Derek Adams, Mira Chokshi, Hieu Doan, Molly Petrick, Joan Ryan, Sam Young

SFFD: Ramon Flores

APPENDIX I:
GEOTECHNICAL BASELINE REPORT

GENERAL NOTES

- Disregard references to Housing and Commercial Component, as they are no longer part of the project.

GEOTECHNICAL BASELINE REPORT
SFMTA Potrero Facility Rebuild
San Francisco, California

Prepared For:

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Prepared By:

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5 June 2024
770691701

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ATTACHMENTS

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Figure 1 Site Location Map

Figure 2 Site Plan with Existing Conditions

Figure 3 Site Plan with Proposed Development

Figure 4 Regional Geologic Map

Figure 5 Interpretive Subsurface Profile A-A'

Figure 6 Interpretive Subsurface Profile B-B'

Figure 7 Contours of Top of Colma Elevation

Figure 8 Contours of Top of Bedrock Elevation

APPENDICES

Appendix A As-built Records for Existing Retaining Walls

Appendix B Logs of Test Borings by others

Appendix C Logs of Test Borings by Arup/RYCG

Appendix D Geophysical Survey Investigation Report (GEOVision Geophysical Services, Inc.)

Appendix E MASW Geophysical Survey Investigation Report (NORCAL Geophysical Consultants, Inc.)

Appendix F Laboratory Test Results by ARUP/RYCG

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GEOTECHNICAL BASELINE REPORT
SFMTA Potrero Facility Rebuild
San Francisco, California

1.0 INTRODUCTION

This Geotechnical Baseline Report (GBR) has been prepared by Langan CA, Inc. (Langan) for the new San Francisco Municipal Transit Authority (SFMTA) Potrero facility in San Francisco, California. The project site occupies one city block and is bound by 17th Street on the north, Hampshire Street on the east, Mariposa Street on the south, and Bryant Street on the west, as shown on Figure 1. The proposed development will be a 7- to 13-story mixed-use structure that will include a new bus maintenance facility and affordable and mixed income housing.

This GBR presents baselines with respect to certain subsurface conditions that are expected to be encountered during construction that may influence the contractor's rate of progress, tooling selection, tool wear, or approach to bidding the project. The GBR establishes a contractual basis for allocation of geotechnical risk during performance of the work; it does not define the single correct interpretation of geotechnical conditions. This baseline report represents the conditions the contractor is to assume for bidding purposes and for which the contractor is responsible for during construction.

This report includes:

- a summary of the geological and geotechnical information obtained for the project;
- interpretation of anticipated ground and groundwater conditions to be encountered, including interpretive geologic and geotechnical subsurface profiles;
- a summary of how these anticipated conditions have influenced the project design and are expected to impact construction;
- discussion of other design and construction considerations that will impact construction.

Interpretation of subsurface information contained in this GBR has included interpolation between widely spaced subsurface exploration points, extrapolations beyond points of exploration, and review of laboratory test data. Soil and rock deposits vary in type, strength, and other important properties between points of exploration. The judgements assume the use of appropriate means, methods, and levels of workmanship. Ultimately, the behavior of the soil and rock deposits present in the surface and subsurface excavations will be influenced by the contractor's means and methods, and levels of workmanship.

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This GBR is to be read in conjunction with the following project Geotechnical Design Report (GDR), which is part of the Contract Documents:

- Geotechnical Investigation Report (Draft), SFMTA Potrero Facility Rebuild, San Francisco, California, dated 23 June 2023, by Langan.

Some of the technical concepts, terms, and descriptions in the GBR may not be familiar to bidders. It is highly recommended that bidders engage a California registered geotechnical engineer or engineering geologist who is familiar with all topics of this report, to carefully review and explain this information so that a complete understanding of the information presented in the GBR can be developed prior to submitting a bid.

Certain drawings and figures contained in other documents in the Contract are referenced by the GBR as an aid to bidders in understanding the elements of the work. Such drawings are not reproduced in the GBR, so this GBR shall be reviewed in conjunction with the Drawings and Specifications and all documents in the Contract.

The GBR was performed in general accordance with our scope of services outlined in our add service request dated 15 December 2023.

2.0 PROJECT DESCRIPTION

The project site is rectangular with plan dimensions measuring approximately 480 by 410 feet. It is occupied by an existing paved electrified-bus parking area on the western portion of the site and a one- to two-story bus maintenance facility with rooftop parking and below-grade vehicle service pits on the eastern portion, as shown on Figure 2. The existing grade of the surrounding streets generally slopes down towards the southwest, with the high point at the corner of 17th Street and Hampshire Street and lowest point at the corner of Mariposa Street and Bryant Street. The current SFMTA facility is generally at the elevation of Mariposa Street to the south at Elevation 53.5 feet[1], with up to about 22 feet of retained soil and rock at the northeastern corner of the site where existing adjacent street grade is highest.

According to a review of the 50 percent schematic design drawings (IBI Group, 2023), we understand that the current plans are to demolish the existing paved electrified-bus parking area

[1] All elevations reference the City & County of San Francisco Vertical Datum of 2013 based on North American Vertical Datum of 1988 (CCSF-VD13); ground surface elevations are based on the ALTA/NSPS Land Title Survey by IBI Group, dated 3 May 2023.

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and the bus maintenance facility and replace them with a 7- to 13-story mixed-use structure that will include a new bus maintenance facility and affordable and mixed income housing.

The proposed finished floor elevation of the ground floor is currently Elevation 50 feet, and the maximum building height is anticipated to be 145 feet above the ground floor, excluding penthouses. A description of the proposed development is as follows:

- The footprint of the new bus maintenance facility will be east of gridline B[2], as shown on Figure 3. The new bus maintenance facility will occupy the lower four levels (designated as Bus Floor), with the Bus Floor level heights ranging from 12 feet to 20.5 feet, with the roof of the bus maintenance facility 70 feet above the ground floor.

- East of gridline B, four- to seven-levels of affordable and mixed income housing units are planned above the new bus maintenance facility. West of gridline B, 13 floors of housing units are planned.

- The western portion of the site will have a one level basement, as shown on Figure 3; the proposed basement extends 20 feet below the ground floor elevation, with the finished floor elevation of the basement at Elevation 30 feet. In addition, a lower-level work area located between gridlines F to G and 8 to 10.5, as shown on Figure 3, is planned below the ground floor on the southeast portion of the site; according to Sheet S3003 of the structural drawings (Nabih Youssef Structural Engineers, 2023), the finished floor of the lower-level work area is 8.5 feet below the ground floor level, corresponding to a finished floor elevation of Elevation 41.5 feet. The remaining footprint of the site will have the ground floor at Elevation 50 feet.

3.0 MANMADE FEATURES

Most of the site along the east side is occupied by a 215-foot-wide bus maintenance facility, as shown on Figure 2. It is a double-height, single-story structure, and the floor level of the maintenance facility conforms to the elevations of Mariposa Street. The garage area of the maintenance facility includes below-grade vehicle service pits. There is roof parking on top of the maintenance facility, which is accessed from 17th Street. At this time, as-built drawings of the existing maintenance facility were not available for review.

The geotechnical investigation report by SCI (SCI, 1989), indicates the existing maintenance building is supported on spread footings extending to depths of up to six feet bgs. An asphalt and concrete paved electrified bus parking area occupies the remainder of the site. The bus

[2] Gridline based on Sheet A1001 titled, "Site Plan" by IBI Group dated 3 May 2023.

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parking area includes ancillary facilities such as support poles for the overhead catenary system, guy wires and electrical lines, a bus washing station and trash compactor facility.

According to borings drilled in the electrified-bus parking area, the area is covered by a section of asphalt over concrete that has thicknesses ranging from 10 to 13 inches. Borings drilled in the existing maintenance building show the building's concrete slab is 6 to 14 inches thick. However, an environmental boring drilled recently in the southeast section of the existing maintenance building cored 22 inches through the existing concrete floor slab and did not find the bottom of the slab.

The site is relatively level as a result of being benched into a natural slope. Elevations of the parking area vary from Elevation 54 feet in the northeast corner to Elevation 48 feet in the southwest corner. Street grades along 17th Street are relatively flat along the eastern 1/3 of the street with elevations ranging from Elevation 75 to 77 feet; the western 2/3 of the street slope steeply with elevations varying from Elevation 75 to 62 feet at the intersection of 17th Street and Bryant Street. Grades along Bryant and Hampshire Street slope down towards Mariposa Street to Elevation 48 and 54 feet, respectively. The site grades generally conform to the street grades along Mariposa Street.

The site is surrounded by reinforced concrete retaining walls up to 23 feet high along Bryant and 17th Street and within the maintenance building along the eastern portion of 17th Street and along Hampshire Street. The available as-built records of the retaining walls that were included in the Arup/RYCB report (Arup, 2019) are included in Appendix A. According to the available as-built records, the walls are concrete walls supported on shallow foundations. The as-built records indicate that the shallow footings are of varying dimensions and embedment depths. According to the as-built records, the north and west retaining walls are backdrained; however, drawings with the details of the east wall were not available for our review. Detail sections on Drawing DL-9809 (see as-built drawings in Appendix A) shows granular drain material, surrounded by filter fabric, along the back of the existing north and west walls and a six-inch-diameter perforated pipe near the base of the walls; drawings of the east wall were not available for our review. If these walls are to be incorporated into the new building, the functionality of the drainage system shall be confirmed. In addition, new basement walls and associated floor slabs shall have drainage panels and underdrains, respectively to prevent the buildup of hydrostatic pressures. For baseline purposes, the contractor shall expect to use sumps to pump out water collected beneath the basement level and lower-level work area.

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4.0 SOURCES OF GEOLOGIC AND GEOTECHNICAL INFORMATION

Details of the field exploration activities, laboratory testing and geophysical surveys are described in geotechnical investigation report (Langan, 2023).

Subsurface information was provided by the SFMTA's geotechnical engineer for the design-build bids, which consisted of a report titled *San Francisco Public Works, SFMTA Potrero Facility Rebuild, Geotechnical Engineering Report,* dated 11 November 2019 by Arup/RYCG A Joint Venture (Arup/RYCG). The Arup/RYCG's report included subsurface data by Subsurface Consultants Inc. (SCI), Earth Mechanics Consulting Engineers (EMCE) and by Treadwell & Rollo, Inc. (T&R) from borings performed at and in the site vicinity. The locations of previous exploration points are shown on Figures 2 and 3. Boring logs by SCI, ECME and T&R are presented in Appendix A. Arup/RYCG drilled six additional borings and performed in-situ seismic measurements using active and passive surface wave techniques along four seismic lines. The boring logs and laboratory tests from the Arup/RYCG's report, are presented in Appendix B and the geophysical survey is presented in Appendix C.

To further evaluate the subsurface conditions and excavatability of the bedrock at and in the vicinity of the site, Langan performed additional geophysical surveys. The locations of the geophysical surveys are shown on Figure 2. The geophysical survey results and a brief evaluation by Norcal are presented in Appendix D.

Results of the laboratory testing from the Arup/RYCG 2018 investigation are included in Appendix E.

5.0 GEOLOGIC SETTING

The project is in the northern part of the San Francisco Peninsula, which falls under the Coastal Ranges geomorphic province. This province is characterized by a series of north-northwest trending mountains and valleys. However, because of recent deposition, these ridges are generally not very visible in San Francisco. Only a few outcrops such as Russian Hill, Nob Hill, Telegraph Hill, Twin Peaks, Potrero Hill, Mount Sutro, Mount Davidson, and the Bayview Hills are exposed (Arup, 2018).

On the basis of our review of the map titled *Geologic Map of the City and County of San Francisco* (AEG, 2018, Modified from Blake and others, 2000; Bonilla, 1998, 1971; and Schlocker, 1974), the northeast portion of the site is underlain by bedrock of the Franciscan or Coast Range Ophiolite, specifically of the Hunters Point Serpentinite-Matrix Melange, while the southern and

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western portions of the site are underlain by Pleistocene deposits as presented in Figure 4. The bedrock is mapped primarily as Serpentinite, but also includes zones of sheared shale. For baseline purposes, the contractor shall expect the serpentinite to contain naturally occurring asbestos (NOA).

6.0 GROUND CHARACTERIZATION

Our conclusions regarding the subsurface conditions described in this section of the report are based on the previously performed borings and laboratory tests and the results of the geophysical surveys performed at the site.

6.1 Subsurface Conditions

For engineering analyses, excavations and supporting systems, the soils at the were subdivided into soil Units 1 through 3 and bedrock as Unit 4. Interpretive subsurface profiles have been developed based on the information in the GDR and is provided shown on Figures 5 and 6.

Unit 1 - Fill: Unit 1 consists of fill, consisting of loose to dense silty sand, sand with silt, sand with gravel, clayey gravel, and silty gravel and soft to stiff sandy clay, was encountered beneath the existing pavement section and building slab. With the exception of BH-04, the fill thickness encountered was six feet or less; deeper fill, consisting of loose to medium dense silty gravel, clayey gravel, and silty sand with gravel, and medium stiff to stiff sandy clay was encountered to 11 feet bgs at BH-04, which was reported by Arup/RYCG as fill that is possibly associated with the construction of the maintenance building. Where tested, the fines of the silty sand fill have a plasticity index (PI) of 29 which indicates a high expansion potential.

For baseline purposes, the contractor shall expect the fill to be heterogenous, with loose to dense sand and gravel with varying fines, and soft to stiff clay and silt with high expansion potential. In addition, the contractor shall expect to encounter fill up to 11 feet below the existing ground surface elevation beneath the site and the fill includes man-made debris.

Unit 2 – Clay and Sand: Unit 2 consists of 6 to 9½ foot thick layer of soft to medium stiff sandy clay and loose to medium dense clayey sand and sand with clay and was encountered at the southeast corner of the site (Borings BH-SCI-05, BH-04, and BH-06) beneath the fill. Where tested, the sandy clay layer has PIs ranging between 20 to 22 and is moderately expansive.

For baseline purposes, the contractor shall expect up to 10 feet of loose to medium dense sand with varying fines and soft to medium stiff moderately expansive clays to be encountered beneath the fill at the southeast portion of the site.

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Unit 3 - Colma Formation: Unit 3 consists of a medium dense to very dense sand with varying amounts of fines, known as the Colma Formation. The unit was encountered at the western and southeastern portions of the site. Where encountered, the sand is approximately 5 to 68 feet thick. The Colma Formation was encountered at depths ranging from approximately two feet (Elevation 51.4 feet) to 12 feet (Elevation 37.4 feet). Where tested, it contained 23 and 43 percent fines (particles passing the No. 200 sieve). The shear wave velocity measured in the Colma Formation is 1,000 to 2,000 feet per second.

For baseline purposes, the contractor shall expect the medium dense to very dense Colma Formation sand with fines content ranging from 20 to 45 percent to be encountered at the western and southeastern portions of the site. The contractor shall expect the top of the unit to be encountered at the elevations shown on the contour plan on Figure 7. The contractor shall expect the thickness of the unit to range from 5 to 70 feet.

Unit 4 - Bedrock: Unit 4 consists of bedrock of the Franciscan or Coast Range Ophiolite, specifically of the Hunters Point Serpentinite-Matrix Melange. The bedrock is mapped primarily as Serpentinite, but also includes zones of sheared shale. Serpentinite is expected to contain naturally occurring asbestos (NOA). During the site investigation, shale and serpentinite were both encountered where explored.

For baseline purposes, the contractor shall expect the unit to consist of bedrock of the Franciscan and Coast Range Ophiolite Formations and is soft to hard, weak to moderately strong and highly to completely weathered. The contractor shall assume the serpentinite bedrock contains naturally occurring asbestos (NOA). The contractor shall expect the top of the unit to be encountered at the elevations shown on the contour plan on Figure 8.

Groundwater: Groundwater was encountered at the site in two of the borings drilled by Arup/RYCG. In BH-01, groundwater was encountered at depths between 30 and 35 feet bgs, corresponding to Elevation 21.8 feet and Elevation 16.8 feet. Arup/RYCG reported perched groundwater above the bedrock encountered in BH-06 at a depth of approximately 9 feet bgs (Elevation 44.9 feet).

For baseline purposes, the contractor shall expect groundwater to be encountered at Elevation 22 feet or perched eight feet above the bedrock where bedrock is encountered above Elevation 22 feet. The contractor shall expect groundwater to exist in seams and fractures in the bedrock.

6.2 Soil Corrosivity

CERCO Analytical, Inc. had performed tests on five soil samples from the site to evaluate corrosion potential to buried metals and concrete for Arup/RYCG. The results of the tests as reported by Arup/RYCG in their geotechnical report are summarized in Table 3.

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TABLE 3
Summary of Corrosivity Test Results

Test Boring	Sample Depth (feet)	pH	Sulfate (mg/kg)	Min. Resistivity (ohms-cm)	Chloride (mg/kg)
BH-01	7	7.44	28	1,400	N.D.
BH-01	41	7.95	N.D.	7,500	N.D.
BH-02	30	7.67	N.D.	8,400	N.D.
BH-02	48	7.27	60	320	N.D.
BH-03	2.5	8.77	22	1,900	N.D.

Note:
1. N.D. = Not detected

According to the resistivity measurements, the soil samples of the fill tested are classified as "corrosive" to buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron. All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron shall be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines shall be protected against corrosion.

For more detailed recommendations regarding the corrosion protection of buried metals and concrete, a licensed corrosion consultant shall be retained.

6.3 Naturally Occurring Asbestos (NOA)

Serpentinite bedrock containing NOA in the form of green rock fragments exhibiting chrysotile fibers (based on visual observations) has been encountered in Franciscan Complex bedrock. Chrysotile is a grey to green, soft, fibrous silicate mineral in the serpentine subgroup and is one of the most commonly encountered forms of NOA. Any asbestiform material shall be sampled and analyzed via the California Air Resource Board (CARB) 435 method for asbestos content.

Serpentinite bedrock was encountered at the site and therefore the site will be subject to the CARB Asbestos Airborne Toxic Control Measure (ATCM) for construction, grading, quarrying, and surface mining operations dated July 2001 during redevelopment. The CARB's Asbestos ATCM is enforced locally by the Bay Area Air Quality Management District (BAAQMD) and requires construction projects greater than one acre to prepare a site-specific Asbestos Dust Monitoring Plan (ADMP) for agency approval. The ADMP specifies dust mitigation measures that must be

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initiated at the start and maintained throughout the duration of the excavation and grading activity per the ATCM. This shall include the following:

- Construction vehicle speed at the work site must be limited to 15 miles per hour (mph) or less.
- Prior to any ground disturbance, sufficient water must be applied to the area to be disturbed to prevent visible dust emissions from crossing the property line.
- Areas to be graded or excavated must be kept adequately wetted[3] to prevent visible dust emission from crossing the property line.
- Storage piles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.
- Equipment must be washed down before moving from the property onto a paved public road.
- Visible track-out on the paved public road must be cleaned using a wet sweeping or a high-efficiency particulate air (HEPA) filter equipped vacuum device within 24 hours.

The project will be required to install a perimeter dust air monitoring network. This typically includes one upwind and two downwind dust monitors, the collection and analysis of daily samples (three per day at a minimum), and daily reporting of those results to BAAQMD throughout the duration of construction grading[4]. Once prepared, the ADMP will be enforceable at the site until post construction stabilization is complete, which shall include one or all of the following:

- establishment of a vegetative cover;
- placement of at least three inches of non-asbestos-containing material; and/or
- fully encapsulating the site in hardscape (i.e., asphalt, sidewalk, or building foundation).

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[3] "Adequately Wetted" means sufficiently moistened with water to minimize the release of particulate matter into the ambient air as determined by the test method in ATCM subsection (h) (5).

[4] "Construction grading" means any surface disturbance conducted with powered equipment or any related activity, including, but not limited to, all surface and subsurface cuts and fills, excavation, trenching, stockpiling, bulldozing, and landfills.

7.0 CONSTRUCTION CONSIDERATIONS

From a geotechnical standpoint, the proposed project is feasible provided the recommendations presented in the GDR (Langan, 2023) are incorporated into the project plans and specifications and implemented during construction. The primary geotechnical issues for this project include:

- presence of undocumented fill and soft to medium stiff clays and loose to medium dense sands above the Colma Formation (Unit 3) at the southeast portion of the site,
- adequate foundation support,
- shoring for the proposed basement excavations and excavation into bedrock,
- potential presence of naturally occurring asbestos (NOA) in the serpentinite bedrock, and
- potential presence of groundwater perched on the bedrock and in bedrock seams and fractures.

7.1 Foundation and Settlement

For baseline purposes, the contractor shall expect bedrock (Unit 4) to be exposed at or just beneath the existing maintenance facility in the northeast portion of the site. The contractor shall expect the remainder of the site to be underlain by fill (Unit 1) over Colma Formation (Unit 3), with the exception of the southeast corner of the site where sand and clay (Unit 2) was encountered above the Colma Formation (Unit 3).

The primary factor influencing the design of the foundation system is the variability in the subsurface conditions across the site at the depths of the proposed foundations for the proposed building. Bedrock (Unit 4) and the Colma Formation (Unit 3) have a relatively high bearing capacity and low compressibility and where bedrock or Colma Formation (Unit 3) sand are encountered at or near the subgrade level, the structure can be supported on spread footing foundations. Where the depth to Colma Formation (Unit 3) or bedrock (Unit 4) renders footings uneconomical, drilled piers taking support in Colma Formation (Unit 3) or bedrock (Unit 4) may be used to support the structure. We expect footings and drilled piers supported in Colma Formation (Unit 3) or bedrock (Unit 4) will settle less than an inch.

For baseline purposes, the contractor shall expect where the finished floor elevation is less than five feet above the top of the Colma Formation (Unit 3) a shallow foundation system will be used. Where finished floor is greater than five feet above the top of the Colma Formation (Unit 3), the contractor shall install a drilled pier; this assumes a maximum practical footing depth of five feet.

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The contractor shall anticipate the transition between footings and drilled pier foundations to occur where the top of Colma Formation (Unit 3) is at approximate Elevation 45 feet or deeper (see Figure 6 for the Elevation 45-foot top of Colma Formation (Unit 3) elevation contour line) where the proposed finished floor is at Elevation 50 feet. During initial stages of construction, the contractor shall expect to perform exploratory pits, borings, or piers along the proposed foundation transition line to verify the baseline assumptions.

7.2 Groundwater Considerations

The groundwater elevation is likely influenced by wet and dry seasons and will fluctuate a few feet. For baseline purposes, the contractor shall expect the groundwater will be encountered at Elevation 22 feet or at the top of bedrock (Unit 4) if bedrock is shallower than Elevation 22 feet.

Because the site is currently benched into a bedrock slope and groundwater may be perched on bedrock. During excavation groundwater may be encountered perched on top of bedrock or in fractures and may flow into the excavation. The contractor shall be prepared to control groundwater flowing into excavations by installing a drainage system and localized dewatering. The contractor shall be aware the City and County of San Francisco's permit requirements and fees for disposal of groundwater. Alternatively, an impervious shoring system could be installed in lieu of local dewatering and/or drainage system.

7.3 Excavation and Dewatering

According to the current project drawings (IBI Group, 2023), the proposed basement will have a finished floor elevation of Elevation 30 feet. In addition, a lower-level work area located between gridline F to G and 8 to 10.5, will have a finished floor elevation of Elevation 41.5 feet. Assuming average footing excavations of three feet, we anticipate the bottom of excavation elevations will range from Elevation 27 feet for the basement and Elevation 38.5 feet for the lower-level work area. According to the topographic map of the existing street and site grades, we estimate retaining heights ranging from 21 feet to 44 feet for the proposed basement and 10 feet for the lower-level work area.

It is anticipated that dense to very dense Colma Formation (Unit 3) sand and interbedded shale and serpentinite bedrock (Unit 4) with varying degrees of weathering will be encountered at the bottom of excavations. Although weak bedrock can be excavated with conventional earth-moving equipment, such as loaders and backhoes, capable of breaking the moderately hard bedrock, such as hoe-rams and large excavators will likely be required to remove some bedrock. For baseline purposes, the contractor shall expect to use conventional earth-moving equipment

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for the excavation of Units 1, 2 and 3 and expect the need for larger equipment, such as hoe-rams and large excavator, for Unit 4. The seismic refraction reports by GEOVision and Norcal (Appendices C and D) have more information regarding the excavatability of the bedrock and shall be reviewed by excavation contractor prior to bidding on the project.

For baseline purposes, the contractor shall expect heavier equipment, such as hoe-rams and large excavators, will be required to remove any remnants of buried foundations or walls from previous buildings that might have occupied the site, or of the existing facilities that interfere with the proposed development. The contractor shall review as built drawings of the existing foundation system and walls to estimate the volume of concrete and assume that they will need to use heavier equipment to remove them.

When preparing the subgrade for the spread footings, areas of loose or disturbed soil may be encountered in localized areas. If loose areas are encountered, the loose material shall be removed and replaced with either lean or structural concrete.

During excavation, the contractor shall expect groundwater will be perched on top of bedrock or in the fractures. The contractor shall expect the portions of the excavations for the basement and lower-level work area that will be in exposed bedrock will require a system of sumps and collection trenches. The contractor shall be familiar with any permit requirements and fees for the installation of wells and for disposal of the groundwater.

Even with active dewatering, wet, disturbed subgrade soil/rock could be exposed at the bottom of excavations and require stabilization prior to placement of improvements. For baseline purposes, the contractor shall expect that in order to stabilize the subgrade, the wet and disturbed subgrade shall be overexcavated and replaced with a lean concrete rat slab.

For drilled shafts, if more than six inches of water is present during concrete placement, either the water shall be pumped out or the concrete be placed into pier shafts using the tremie method and/or a pumper pipe. Concrete shall be placed from the bottom up in a single operation. The tremie pipe shall be maintained at least five feet below the upper surface of the concrete during casting of the piers. To develop the design skin friction value provided in the geotechnical investigation report (Langan, 2023), concrete used for pier construction shall have a slump between seven and nine inches. As the concrete is placed, casing used to stabilize the hole can be withdrawn. The bottom of the casing shall be maintained at least three feet below the surface of the concrete.

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7.4 Shoring

Where space permits, excavations shallower than five feet may be vertical; however, for deeper excavations, adjacent improvements shall be retained by temporary shoring during excavation for the basement and construction of the building in accordance with the Occupational Safety and Health Administration (OSHA) standards (29 CFR Part 1926). There are several key considerations in selecting a suitable shoring system. Those we consider to be primary concerns are:

- reuse of existing walls along the perimeter of the site to provide temporary support;
- protection of surrounding improvements including the existing streets and buildings;
- ease of installation;
- proper installation of the shoring system to reduce the potential of ground movement, and
- construction cost.

Currently, the site has retaining walls along the northwest, north and northeast property line. The shoring designer shall consider reusing the existing retaining walls as part of their shoring system if they do not interfere with the proposed improvements and are considered structurally sound.

If the existing walls cannot be used as shoring, there are several methods of providing lateral support for the excavation including sheet piles, soldier piles and lagging and soil nailing. Sheet piles are difficult to install into the dense Colma Formation (Unit 3) sand and bedrock (Unit 4). The presence of cohesionless soil precludes soil nailing the entire excavation. Therefore, considering the depths of the proposed cuts, expected soil conditions and our past experiences, soldier pile and lagging system with tiebacks shall be considered the baseline shoring system for the project by the contractor. The presence of sand and bedrock may cause some difficulty with installation of the soldier piles and tiebacks. However, this system has been successfully used in a number of major projects in the vicinity of this site with similar subsurface conditions.

A soldier-pile-and-lagging system consists of concrete encased steel beams placed in predrilled holes extending below the bottom of the excavation. Wood lagging is placed between the piles as the excavation proceeds. Shoring will require tiebacks or internal bracing for lateral support if a cantilever shoring system is not appropriate for the basement excavation.

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The shoring system selected shall be designed by a civil engineer knowledgeable in the specific type of construction. The shoring contractor shall select the shoring system based on the subsurface conditions.

Because of the presence of loose to medium dense sand, steel piles shall not be vibrated into place. Our experience has shown that vibration causes settlement of sand and distress to existing improvements. Steel piles shall be placed in predrilled holes backfilled with concrete. For baseline purposes, the contractor shall expect that drilling of the shafts for the soldier piles will require casing and/or the use of slurry to prevent caving of sand layers. If water is encountered in the shafts or drilling mud is used, concrete shall be placed by tremie method. The contractor shall expect drilling of the holes for the soldier beams in the bedrock will be problematic where hard competent rock is encountered. Because the tiebacks will extend beneath the public streets and adjacent buildings, the contractor shall expect encroachment permits will be required. The contractor shall expect deep utility vaults present beneath sidewalks and streets, which will limit the use of tiebacks or require them to.

Where space allows, temporary slopes may be used. Temporary slopes shall not be steeper than 1.5:1 (horizontal to vertical) for slopes up to 10 feet in height. The contractor shall anticipate where temporary slopes are greater than 10 feet, the temporary slopes shall be analyzed on a case-by-case basis by the geotechnical engineer for factor of safety (FS) of at least 1.3. Vertical cuts can be used where the excavation is less than four feet, but the contractor shall expect soil to slough or not remain vertical where cohesionless soil is encountered. The contractor shall remove soil which sloughs into an excavation.

If there is insufficient space to slope the excavation, then a shoring system shall be used to retain the sides of the excavations. Because the depth of the excavations for the basement on the western portion of the site will be on the order of 20 feet, which will require a retained height of 21 to 44 feet, the contractor shall expect the shoring be tied back or internally braced.

7.5 Site Preparation and Earthwork

For baseline purposes, the contractor shall expect that demolition in areas to be developed shall include removal of existing pavement, utility lines, wells, and underground obstructions, including foundations of existing structures. Any vegetation and organic topsoil shall be stripped in areas to receive new site improvements. Stripped organic soil shall be stockpiled for later use in landscaped areas, if approved by the owner and architect; organic topsoil shall not be used as compacted fill.

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For baseline purposes, the contractor shall expect brick, rock, concrete, old foundations, and other building rubble will be encountered in the fill (Unit 1). The fill (Unit 1) is likely contaminated and special handling and disposal may be required; the contractor shall review available environmental reports. The contractor shall expect installation of shoring and foundations and excavation will also be difficult in some areas of the site as a result of the obstructions in the fill. In addition, the contractor shall expect serpentinite bedrock containing naturally occurring asbestos (NOA) will be encounter when excavating for footings, the basement level and lower-level work area. Detailed discussion regarding NOA is presented in Section 6.3 and the monitoring for NOA is presented in Section 8.2.

From a geotechnical standpoint, asphalt and concrete removed from the site may be crushed and reused, provided it is free of organic material and rocks or lumps greater than three inches in greatest dimension. The acceptability of using crushed asphalt at the site shall be verified by the property owner, architect, and environmental consultant. Where crushed asphalt pavement materials are used, particles between 1½ and 3 inches in greatest dimension shall comprise no more than 20 percent of the fill by weight.

Where utilities to be removed extend off site, they shall be capped or plugged with grout at the property line. It may be feasible to abandon utilities in-place, provided they will not impact future utilities or building foundations. If utilities are abandoned in-place, they shall be completely filled with flowable cement grout over their entire length. Existing utility lines encountered during construction shall be addressed on a case-by-case basis. However, for baseline purposes, the contractor shall expect existing utilities within four feet of final grades shall be removed, and the resulting excavation shall be properly backfilled.

Where the proposed improvements are to be supported on drilled piers, it will be necessary to remove any obstructions that will interfere with installation of the drilled piers and construction of the footings, pier caps and grade beams. It may be possible to leave some obstructions in place; however, this shall be determined on a case-by-case basis. Excavations resulting from demolition activities shall be backfilled accordingly.

Loose to medium dense sands or gravels are present in the surficial soils. Heavy equipment is typically required to install drilled piers. This type of equipment can disturb the subgrade and may require that the subgrade be winterized or repaired after installation of the drilled pier elements. The contractor shall expect vertical excavations in sand to not be stable and will need to be formed. If caving of footings, pier caps or grade beams occur, the excavation will need to be cleaned out prior to pouring concrete.

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8.0 INSTRUMENTATION AND MONITORING

A monitoring program shall be established to evaluate the effects of the construction on the adjacent improvements. The contractor shall install surveying points to monitor the movement of shoring, adjacent improvements, and settlement of the adjacent ground surface during below-grade construction activities. The shoring system and adjacent improvements shall be monitored for movements throughout the excavation and at least until the ground-level slab is cast. Details regarding the location and frequency of the monitoring is presented in the following subsections.

8.1 Ground Movement Monitoring

The conditions of existing buildings within 100 feet of the site shall be photographed and surveyed prior to the start of construction and monitored periodically during construction. A thorough crack survey of the adjacent buildings, especially those surrounding the proposed excavation shall be performed prior to the start of construction and immediately after its completion.

The purpose of these observations is to provide photographic and/or video documentation representative of general existing conditions, and to identify obvious visual deficiencies. The preconditions observations shall also identify areas requiring specific monitoring during construction. Structural integrity is not addressed in such documentation. This baseline information is often critical in the event of future damage claims resulting from construction activities. The preconstruction conditions documentation shall be used to inform an observational and instrumentation monitoring program that can be used to evaluate the performance of adjacent structures and construction procedures.

To monitor ground movements and shoring movements during the excavation activities, the contractor shall install the instrumentation listed below:

Slope inclinometers: For baseline purposes, the contractor shall install slope inclinometers adjacent to the proposed shoring system. The number of inclinometers will be determined once the location of the temporary shoring system has been finalized. However, for baseline purposes, the contractor shall expect to install two inclinometers behind each shoring wall. The slope inclinometers shall be installed following the installation of the shoring walls and prior to excavation. Langan shall obtain inclinometer readings regularly. Initially, depending upon the speed of excavation, the instrumentation shall be read weekly. The frequency of readings may, in the later stage of construction, be modified as appropriate.

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Survey points: Survey points shall be installed on the adjacent streets and improvements that are within 100 feet of the proposed excavation. In addition, survey points shall be installed at the tops of the shoring walls at 20-foot-spacing. These points shall be used to monitor the vertical and horizontal movements of the shoring and these improvements. These points shall be selected with the help of the geotechnical engineer, so they can provide the most value to the project. The survey shall be read regularly, and the results shall be submitted to us in a timely manner for review. For estimating purposes, assume that the survey points will be read as follows:

- prior to any shoring work at the site;
- after installing soldier piles;
- after excavation of each lift;
- after the excavation reaches the planned excavation level;
- every two weeks until the street-level floor slab is constructed.

8.2 NOA

As discussed in Section 6.3, the site will be subject to the CARB Asbestos Airborne Toxic Control Measure (ATCM) for construction, grading, quarrying, and surface mining operations dated July 2001 during redevelopment. Also, the project will be required to install a perimeter dust air monitoring network. Upon completion of construction grading and post-construction stabilization, a written closure request is submitted to BAAQMD, and a final district approved site inspection is completed. Based on the discovery of serpentinite, the subsurface lithology beneath the site, and proposed excavation activities, Langan recommends notifying BAAQMD on the discovery of serpentinite at the site and the preparation of an ADMP for BAAQMD review and approval for regulatory compliance prior to construction.

In addition, Langan recommends that the project team consult with a Certified Industrial Hygienist (CIH) to provide health and safety recommendations for potential worker exposure to NOA per California Occupational Safety and Health Administration (OSHA) requirements. Based on our experience on other NOA construction projects in the San Francisco Bay Area, the health and safety recommendations provided by a CIH shall include the following:

- Update the site-specific Health and Safety Plan (HASP) to address the presence of NOA at the site.
- Perform NOA worker training for each trade performing activities in or disturbing NOA.

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In our experience, training must be conducted for each applicable subcontractor and individual employees working in NOA or with potential exposure to NOA.

- Perform a series of negative exposure assessments (i.e., personal air monitoring) for each activity and each subcontractor disturbing NOA (excavation and grading, foundation work, etc.).

- During the initial personal air monitoring, personnel protective equipment (PPE) is typically upgraded to Level C (as determined by the CIH). The CIH will work with the subcontractors to determine which activities require personal air monitoring. This typically needs to be repeated for each subcontractor and each new activity.

- Document acceptable personal air monitoring results below the OSHA permissible exposure limit (PEL) for asbestos and deescalate PPE to Level D (if monitoring results are below the OSHA PEL) For baseline purposes, the contractor shall expect that if monitoring results are elevated above OSHA PELs, the CIH will recommend that Level C PPE remain in place until monitoring results indicated acceptable air quality for workers.

A CIH will be able to provide more details on hazard notification and appropriate Cal OSHA compliance requirements. Langan recommends consulting with a CIH before continuing any work in potential areas containing NOA.

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REFERENCES

Arup/RYCG A Joint Venture (2019). "San Francisco Public Works, SFMTA Potrero Facility Rebuild, Geotechnical Engineering Report."

IBI Group (2023). "Potrero Yard Modernization Project 50% Schematic Design," dated 3 May 2023.

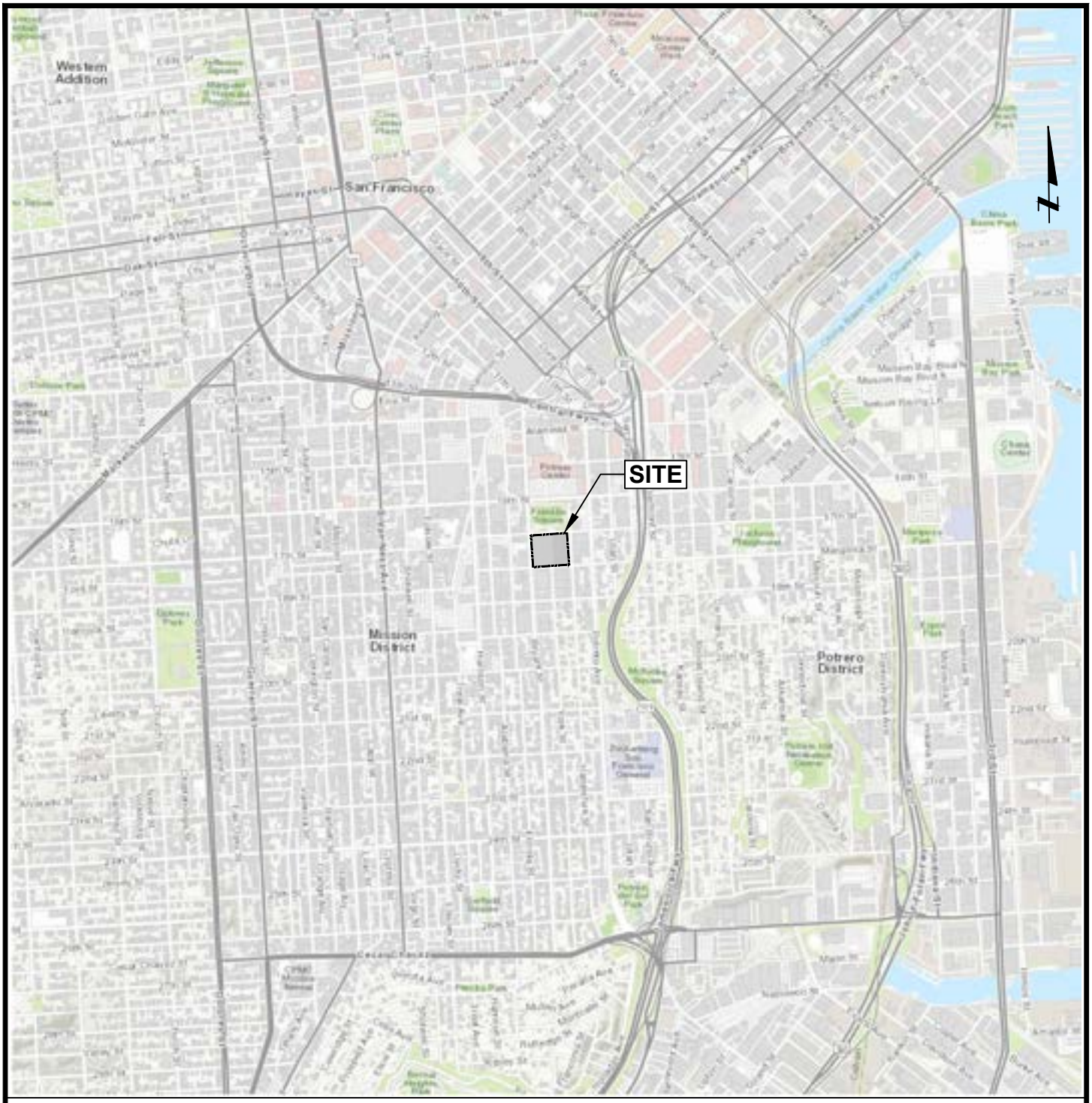
Schlocker, J. (1958). "Geology of the San Francisco North Quadrangle, California."

Subsurface Consultants, Inc. (1990). "Geotechnical Investigation, Renovation and Seismic Upgrade, Muni Potrero Facility, Mariposa and Hampshire Street, San Francisco, California." SCI 473.002 dated 25 September 1990.

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FIGURES

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Note:
Base map is provided through Langan's Esri Arc GIS software licensing and Arc GIS online.
Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN.

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0 2,000 Feet

Approximate scale

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Project
SFMTA POTRERO FACILITY REBUILD
SAN FRANCISCO
SAN FRANCISCO COUNTY CALIFORNIA

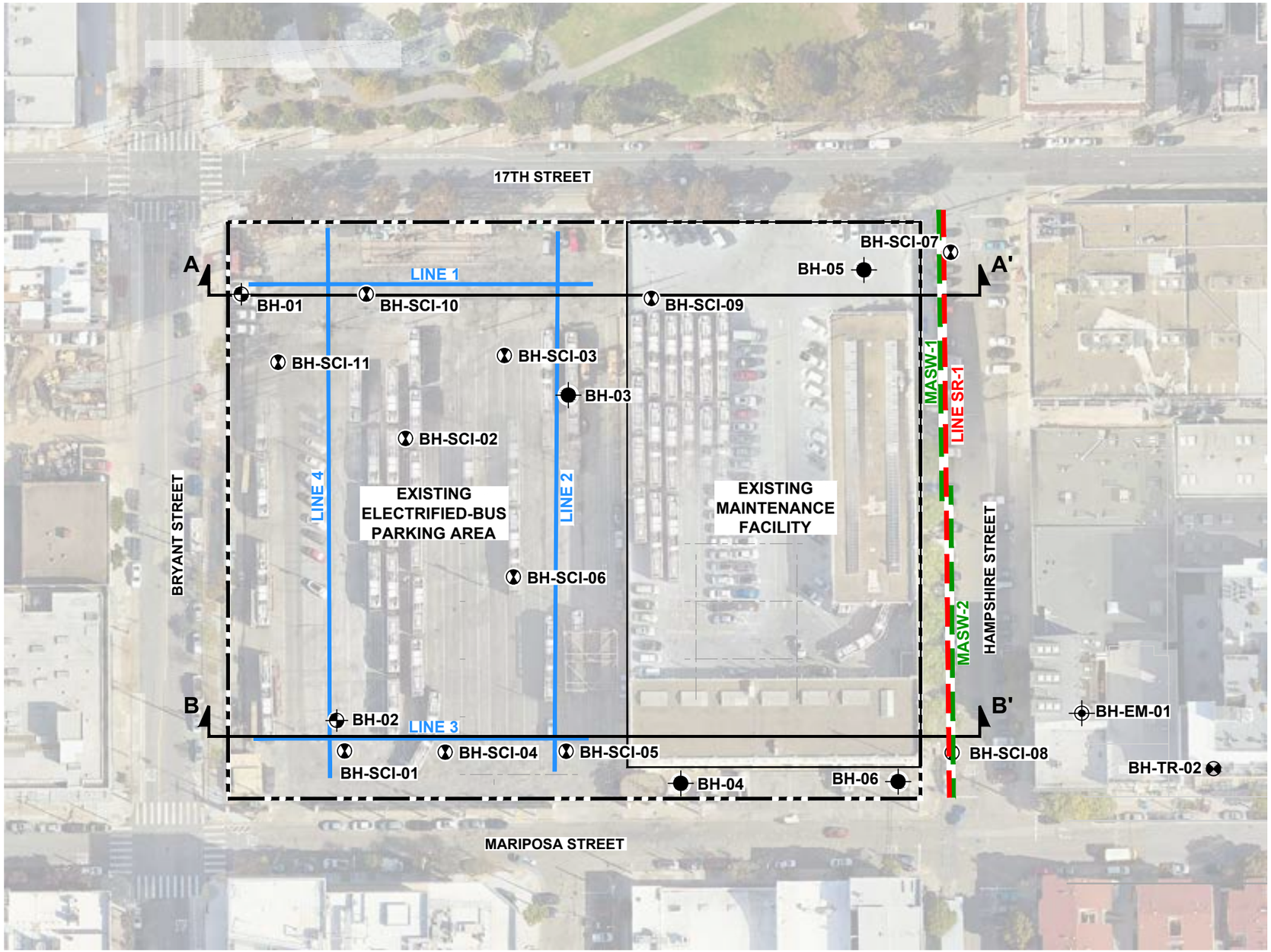
Figure Title
SITE LOCATION MAP

Project No.	770691701
Date	03/11/2024
Drawn By	AG
Checked By	JN

Figure
1

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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-GI0102_SiteLocMap.dwg Date: 3/11/2024 Time: 10:06 User: agekas Style Table: Langan.stb Layout: Figure 1 Site Loc



EXPLANATION

- **BH-01** — Approximate location of deep boring by Arup, March 2018
- **BH-03** — Approximate location of shallow boring by Arup, March 2018
- **BH-TR-02** — Approximate location of boring by Treadwell & Rollo, Inc., December 2004
- **BH-EM-01** — Approximate location of boring by Earth Mechanics, July 1998
- **BH-SCI-01** — Approximate location of boring by Subsurface Consultants, Inc., January 1989
- **LINE 1** — Approximate location of surface wave geophysics line by GEOVision Geophysical Services, Inc, March 2018
- **LINE SR-1** — Approximate location of seismic refraction line by NORCAL Geophysical Consultants, Inc., April 2023
- **MASW-1** — Approximate location of surface wave geophysics line by NORCAL Geophysical Consultants, Inc., April 2023
- **A A'** — Interpretive cross section location
- Site boundary

Reference: Aerial by Google Earth Pro 2023.

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0 80 Feet

Approximate scale

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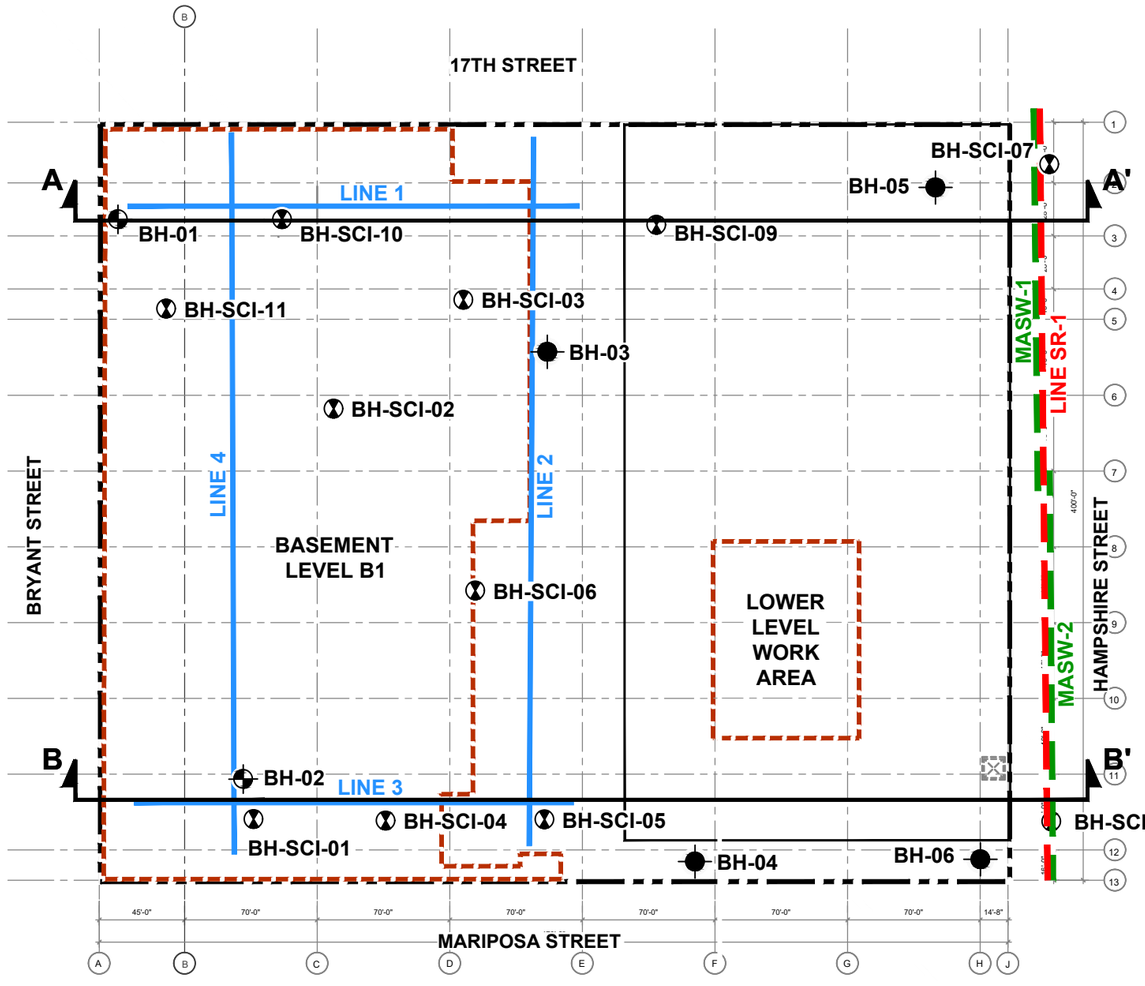
Project: SFMTA POTRERO FACILITY REBUILD
SAN FRANCISCO
SAN FRANCISCO COUNTY CALIFORNIA

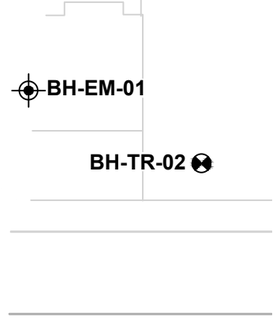
Figure Title: SITE PLAN WITH EXISTING CONDITIONS

Project No. 770691701
Date 06/04/2024
Drawn By AG
Checked By JN
Figure No. 2

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EXPLANATION

- **BH-01** — Approximate location of deep boring by Arup, March 2018
- **BH-03** — Approximate location of shallow boring by Arup, March 2018
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- **BH-EM-01** — Approximate location of boring by Earth Mechanics, July 1998
- **BH-SCI-01** — Approximate location of boring by Subsurface Consultants, Inc., January 1989
- **LINE 1** — Approximate location of surface wave geophysics line by GEOVision Geophysical Services, Inc, March 2018
- Footprint of proposed basement (Level B1) and lower level work area (Note 1)
- **LINE SR-1** — Approximate location of seismic refraction line by NORCAL Geophysical Consultants, Inc., April 2023
- **MASW-1** — Approximate location of surface wave geophysics line by NORCAL Geophysical Consultants, Inc., April 2023
- A — A' Interpretive cross section location
- Site boundary

Note: 1. The footprint of proposed basement (Level B1) and lower level work area is approximate and should not be relied upon for bidding or construction.

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Reference: Base drawings provided by IBI Group titled "Potrero Yard Modernization Project 50% Schematic Design", dated 05/03/2023, Sheet No. A1001 titled "SITE PLAN".

0 80 Feet

Approximate scale

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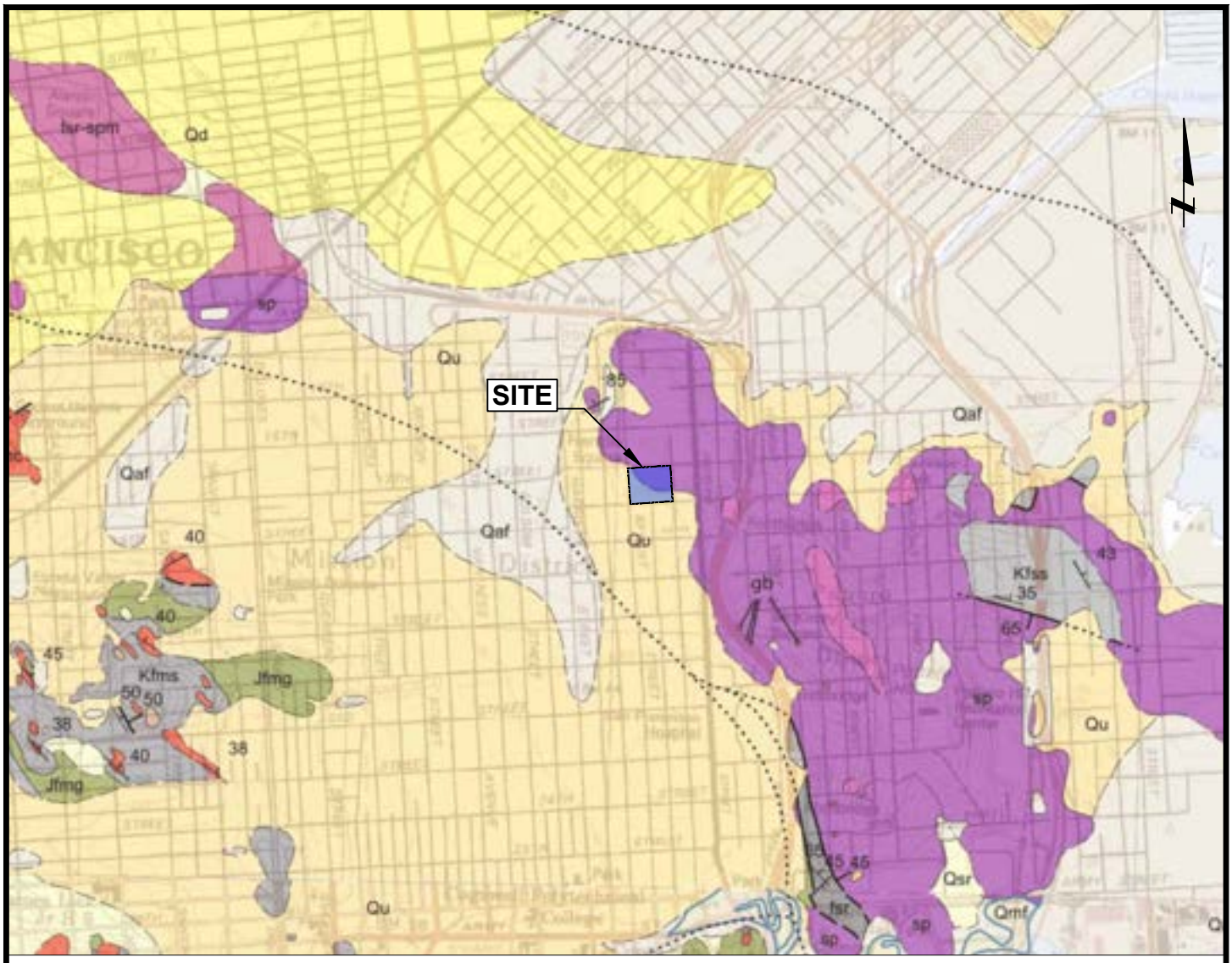
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San Jose, CA 95113

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Project	SFMTA POTRERO FACILITY REBUILD SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA
Figure Title	SITE PLAN WITH PROPOSED DEVELOPMENT
Project No.	770691701
Date	06/04/2024
Drawn By	AG
Checked By	JN
Figure No.	3

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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-SP0102_For Letter Report.dwg Date: 6/5/2024 Time: 09:36 User: agekas Style Table: Langan.stb Layout: Site Plan Fig 3



EXPLANATION

Qaf	Artifical fill
Qmf	Artificial fill over bay mud
Qd	Dune sand
Qsr	Slope and ravine fill
Qu	Undifferentiated surficial deposits
Kfss	Franciscan(?) sandstone
fsr	Sheared sandstone and shale with small blocks of other rock (Melange)
fsr-spm	Intermixed serpentinite and sheared sandstone and shale
sp	Serpentinite with small blocks of other rock
gb	Gabbro
Kjfmc	Chert
Jfmg	Greenstone
Kfms	Sandstone

50 — Strike and dip of bedding

Contact -- Depositional or intrusive contact, dashed where approximately located, dotted where concealed

Fault -- Dashed where approximately located; small dashed where inferred, dotted where concealed; dip value and direction

75

DRAFT

0 2000 Feet

Approximate scale

Base map: Geologic Map of the City and County of San Francisco. Modified from Blake and others (2000); Bonilla (1998; 1971); and Schlocker (1974).

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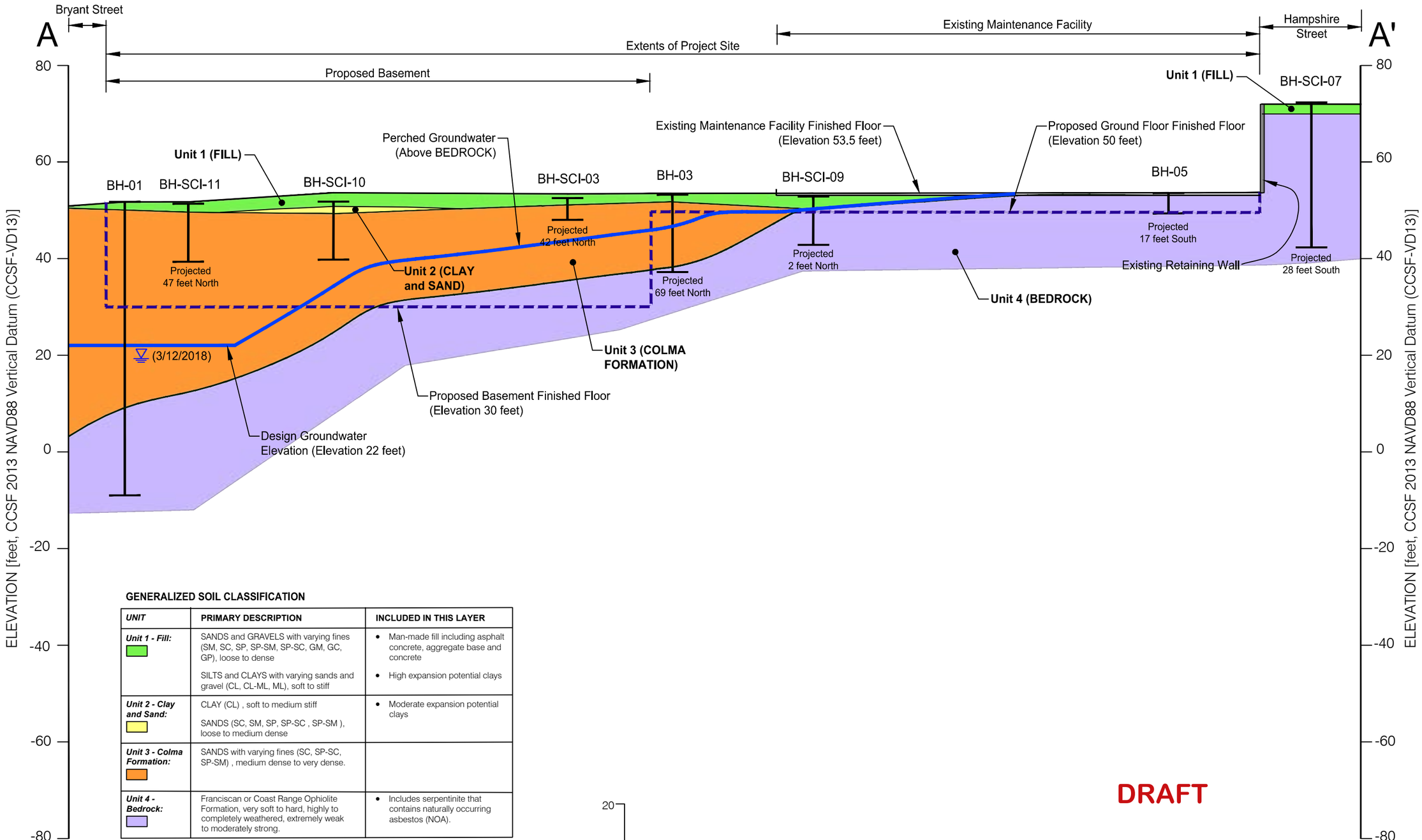
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Project	SFMTA POTRERO FACILITY REBUILD SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA
Figure Title	REGIONAL GEOLOGIC MAP
Project No.	770691701
Date	03/11/2024
Drawn By	AG
Checked By	JN
Figure	4

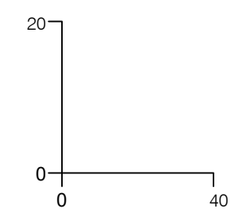
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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-GI0102_SiteLocMap.dwg Date: 3/11/2024 Time: 10:04 User: agekas Style Table: Langan.stb Layout: Figure 4-GeologyMap



GENERALIZED SOIL CLASSIFICATION

UNIT	PRIMARY DESCRIPTION	INCLUDED IN THIS LAYER
Unit 1 - Fill:	SANDS and GRAVELS with varying fines (SM, SC, SP, SP-SM, SP-SC, GM, GC, GP), loose to dense SILTS and CLAYS with varying sands and gravel (CL, CL-ML, ML), soft to stiff	• Man-made fill including asphalt concrete, aggregate base and concrete • High expansion potential clays
Unit 2 - Clay and Sand:	CLAY (CL) , soft to medium stiff SANDS (SC, SM, SP, SP-SC , SP-SM), loose to medium dense	• Moderate expansion potential clays
Unit 3 - Colma Formation:	SANDS with varying fines (SC, SP-SC, SP-SM) , medium dense to very dense.	
Unit 4 - Bedrock:	Franciscan or Coast Range Ophiolite Formation, very soft to hard, highly to completely weathered, extremely weak to moderately strong.	• Includes serpentinite that contains naturally occurring asbestos (NOA).



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Project
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SAN FRANCISCO
SAN FRANCISCO COUNTY CALIFORNIA

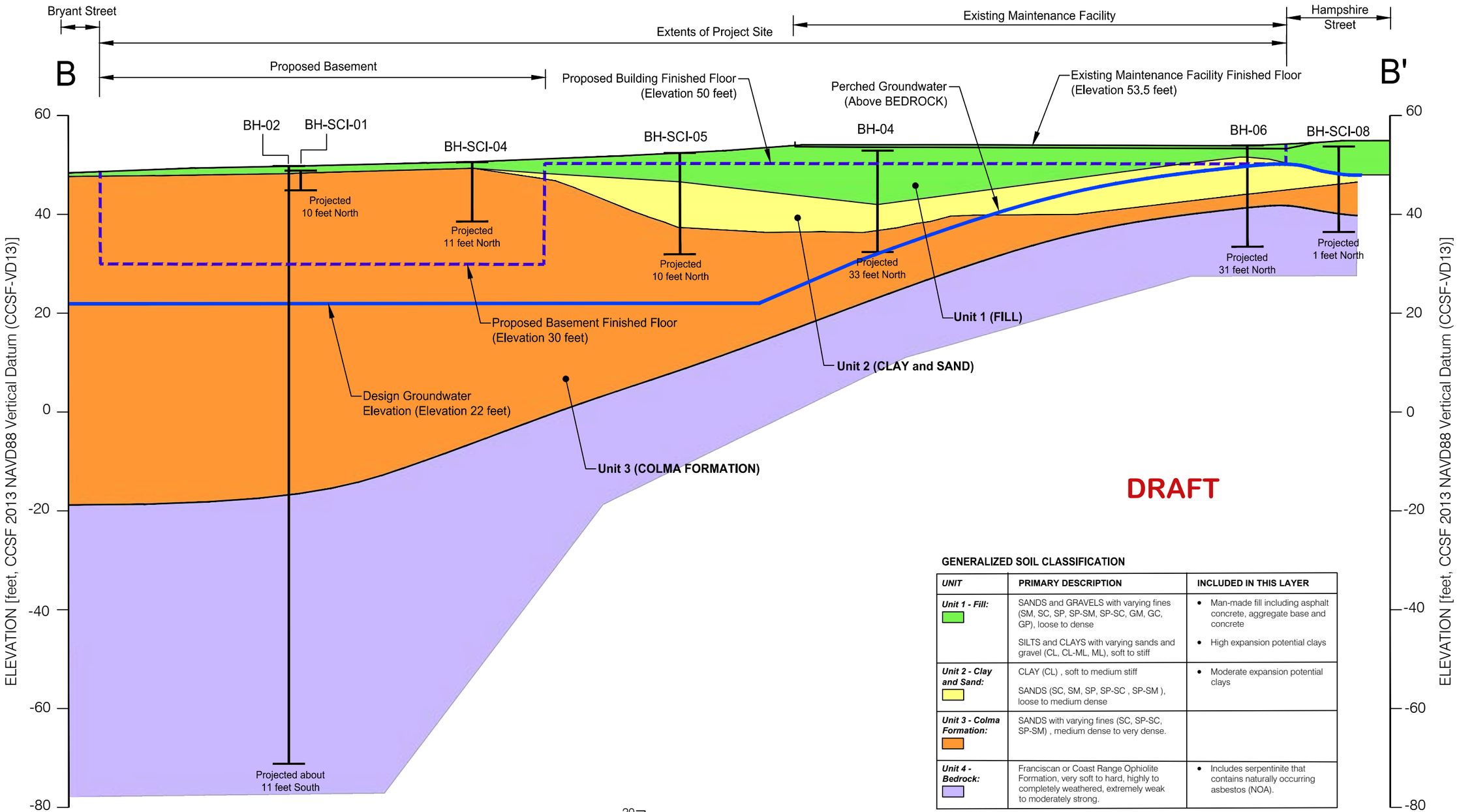
Figure Title
INTERPRETIVE SUBSURFACE PROFILE A-A'

Project No.	770691701
Date	06/04/2024
Drawn By	AG
Checked By	JN

Figure No. 5

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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-XS0101_In Colors.dwg Date: 6/5/2024 Time: 09:15 User: agekas Style Table: Langan.stb Layout: A-A' (2)



DRAFT

GENERALIZED SOIL CLASSIFICATION

UNIT	PRIMARY DESCRIPTION	INCLUDED IN THIS LAYER
Unit 1 - Fill:	SANDS and GRAVELS with varying fines (SM, SC, SP, SP-SM, SP-SC, GM, GC, GP), loose to dense SILTS and CLAYS with varying sands and gravel (CL, CL-ML, ML), soft to stiff	• Man-made fill including asphalt concrete, aggregate base and concrete • High expansion potential clays
Unit 2 - Clay and Sand:	CLAY (CL) , soft to medium stiff SANDS (SC, SM, SP, SP-SC , SP-SM), loose to medium dense	• Moderate expansion potential clays
Unit 3 - Colma Formation:	SANDS with varying fines (SC, SP-SC, SP-SM) , medium dense to very dense.	
Unit 4 - Bedrock:	Franciscan or Coast Range Ophiolite Formation, very soft to hard, highly to completely weathered, extremely weak to moderately strong.	• Includes serpentinite that contains naturally occurring asbestos (NOA).

20
0
0 40
APPROXIMATE SCALE IN FEET

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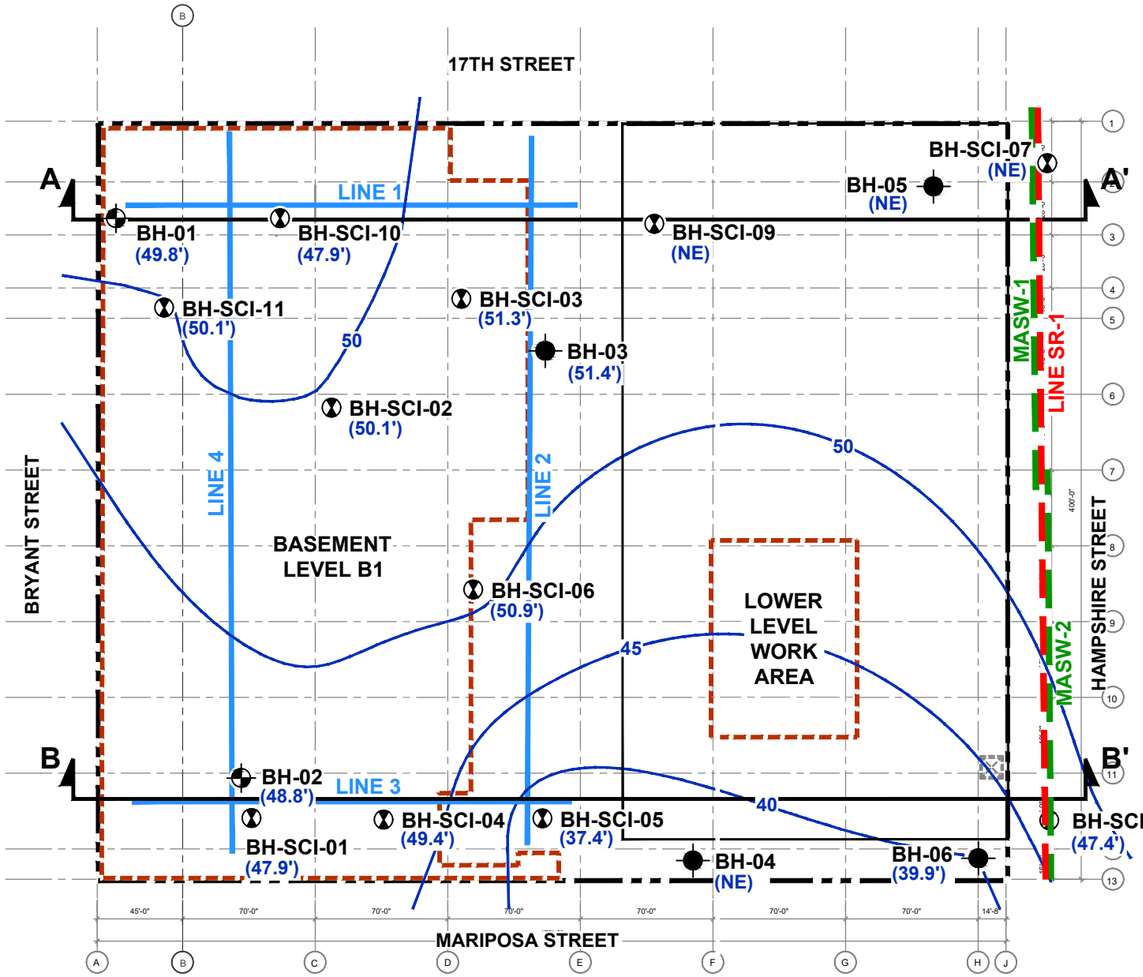
Project
SFMTA POTRERO FACILITY REBUILD
SAN FRANCISCO
SAN FRANCISCO COUNTY CALIFORNIA

Figure Title
INTERPRETIVE SUBSURFACE PROFILE B-B'

Project No.	770691701
Date	06/04/2024
Drawn By	AG
Checked By	JN

Figure No. 6

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EXPLANATION

- **BH-01** — Approximate location of deep boring by Arup, March 2018
- **BH-03** — Approximate location of shallow boring by Arup, March 2018
- **BH-TR-02** — Approximate location of boring by Treadwell & Rollo, Inc., December 2004
- **BH-EM-01** — Approximate location of boring by Earth Mechanics, July 1998
- **BH-SCI-01** — Approximate location of boring by Subsurface Consultants, Inc., January 1989
- **LINE 1** — Approximate location of surface wave geophysics line by GEOVision Geophysical Services, Inc, March 2018
- Footprint of proposed basement (Level B1) and lower level work area
- **50** — Contours of Top of Colma Elevation (feet, CCSF-VD13), Langan 2023
- **(49.8')** — Top of Colma Elevation (feet, CCSF-VD13), Langan 2023
- **LINE SR-1** — Approximate location of seismic refraction line by NORCAL Geophysical Consultants, Inc., April 2023
- **MASW-1** — Approximate location of surface wave geophysics line by NORCAL Geophysical Consultants, Inc., April 2023
- **A A'** — Interpretive cross section location
- Site boundary

Note: 1. The footprint of proposed basement (Level B1) and lower level work area is approximate and should not be relied upon for bidding or construction.

DRAFT

Reference: Base drawings provided by IBI Group titled "Potrero Yard Modernization Project 50% Schematic Design", dated 05/03/2023, Sheet No. A1001 titled "SITE PLAN"

N

0 80 Feet

Approximate scale

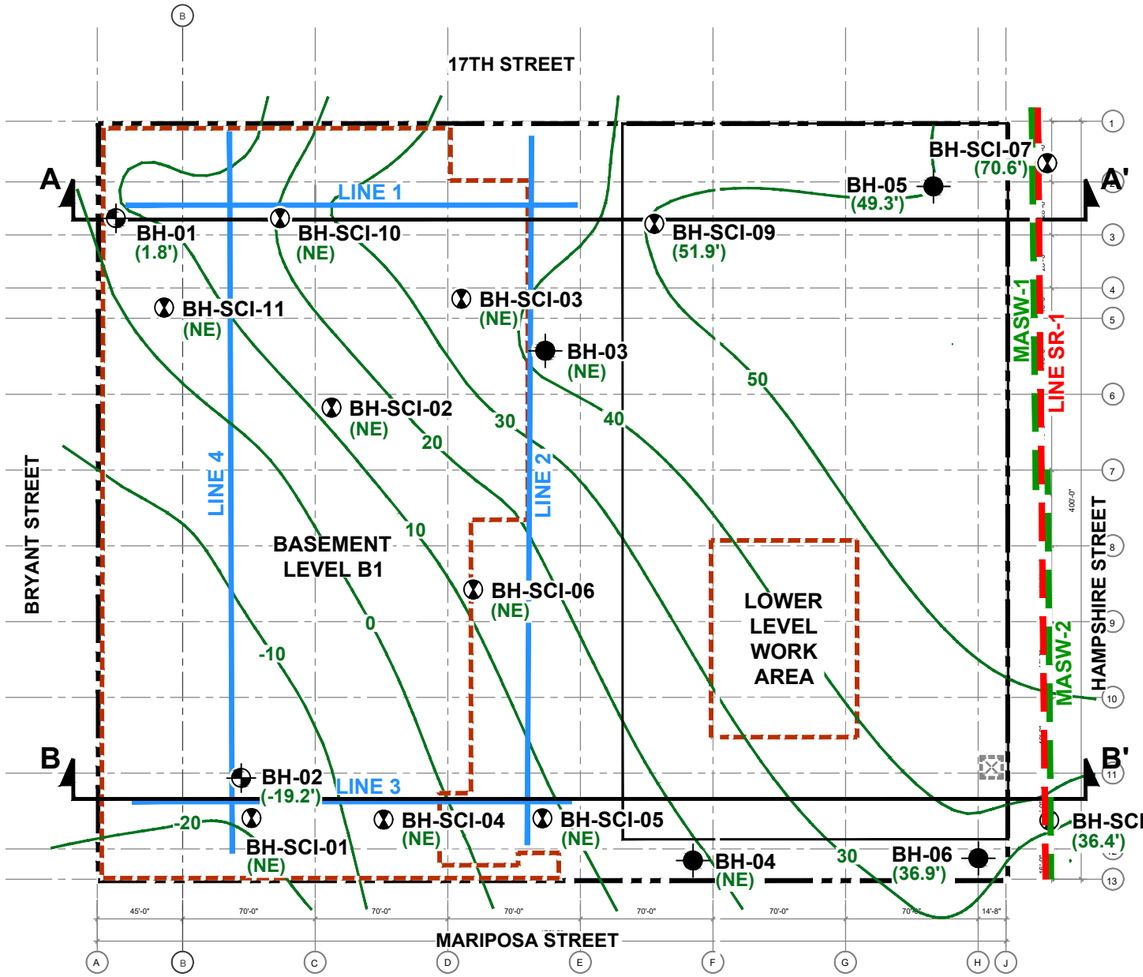
LANGAN

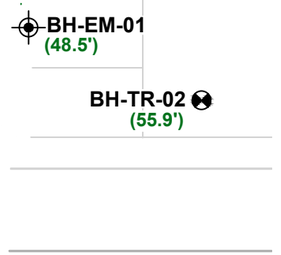
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Project	SFMTA POTRERO FACILITY REBUILD SAN FRANCISCO SAN FRANCISCO COUNTY CALIFORNIA
Figure Title	CONTOURS OF TOP OF COLMA ELEVATION
Project No.	770691701
Date	06/04/2024
Drawn By	AG
Checked By	JN
Figure No.	7

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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-SP0102_For Letter Report.dwg Date: 6/5/2024 Time: 09:33 User: agekas Style Table: Langan.stb Layout: Colma Fig 7_2





EXPLANATION

- **BH-01** — Approximate location of deep boring by Arup, March 2018
- **BH-03** — Approximate location of shallow boring by Arup, March 2018
- **BH-TR-02** — Approximate location of boring by Treadwell & Rollo, Inc., December 2004
- **BH-EM-01** — Approximate location of boring by Earth Mechanics, July 1998
- **BH-SCI-01** — Approximate location of boring by Subsurface Consultants, Inc., January 1989
- **LINE 1** — Approximate location of surface wave geophysics line by GEOVision Geophysical Services, Inc, March 2018
- Footprint of proposed basement (Level B1) and lower level work area
- **50** — Contours of Top of Bedrock Elevation (feet, CCSF-VD13), Langan 2023
- **(49.3')** — Top of Bedrock Elevation (feet, CCSF-VD13)
- **LINE SR-1** — Approximate location of seismic refraction line by NORCAL Geophysical Consultants, Inc., April 2023
- **MASW-1** — Approximate location of surface wave geophysics line by NORCAL Geophysical Consultants, Inc., April 2023
- **A A'** — Interpretive cross section location
- Site boundary

Note: 1. The footprint of proposed basement (Level B1) and lower level work area is approximate and should not be relied upon for bidding or construction.

DRAFT

Reference: Base drawings provided by IBI Group titled "Potrero Yard Modernization Project 50% Schematic Design", dated 05/03/2023, Sheet No. A1001 titled "SITE PLAN"

N

0 80 Feet

Approximate scale

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SAN FRANCISCO COUNTY CALIFORNIA

Figure Title: CONTOURS OF TOP OF BEDROCK ELEVATION

Project No.	Figure No.
770691701	8
Date: 06/04/2024	
Drawn By: AG	
Checked By: JN	

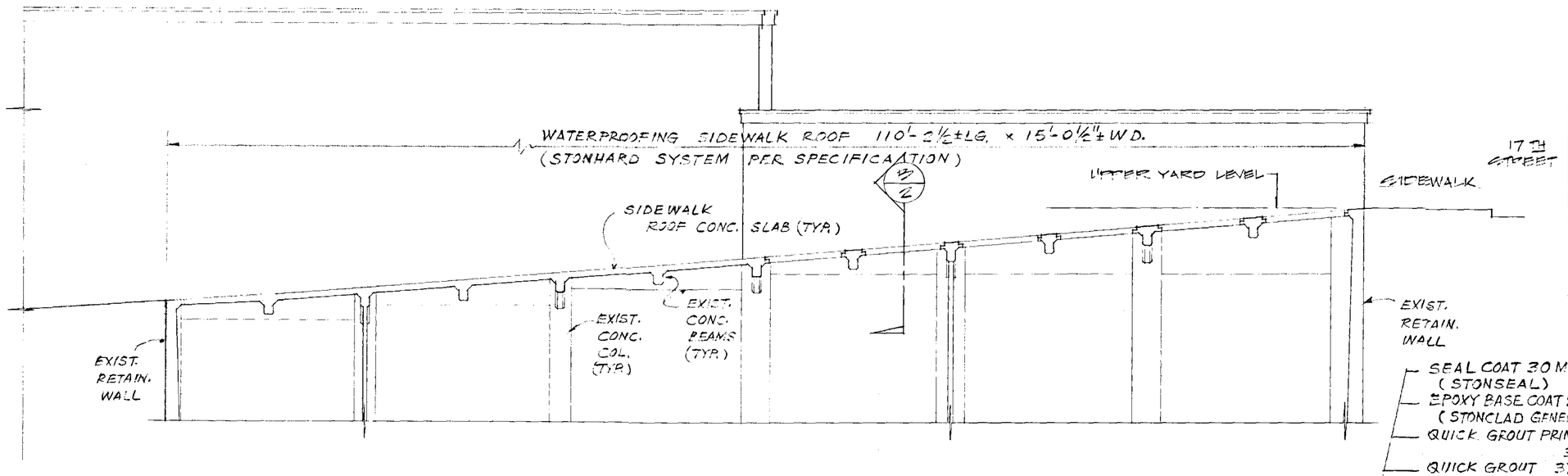
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Filename: \\langan.com\data\SJO\data7\770691701\Project Data\CAD_01\01\2D-DesignFiles\Geotechnical\770691701-B-SP0102_For Letter Report.dwg Date: 6/5/2024 Time: 09:31 User: agekas Style Table: Langan.stb Layout: Rock Plan Fig 8 (2)

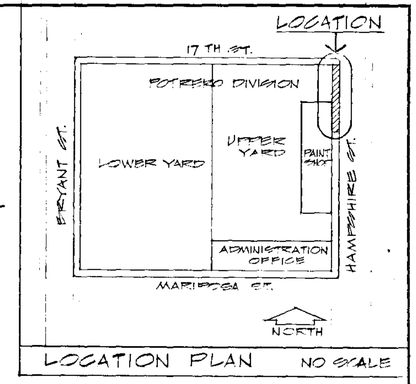
APPENDIX A

AS-BUILT RECORDS FOR EXISTING RETAINING WALLS

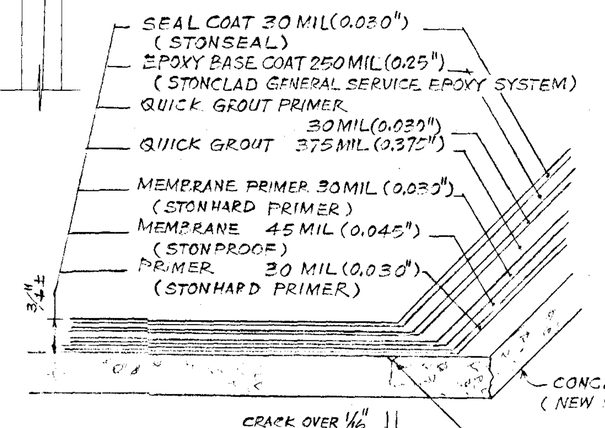
DRAFT



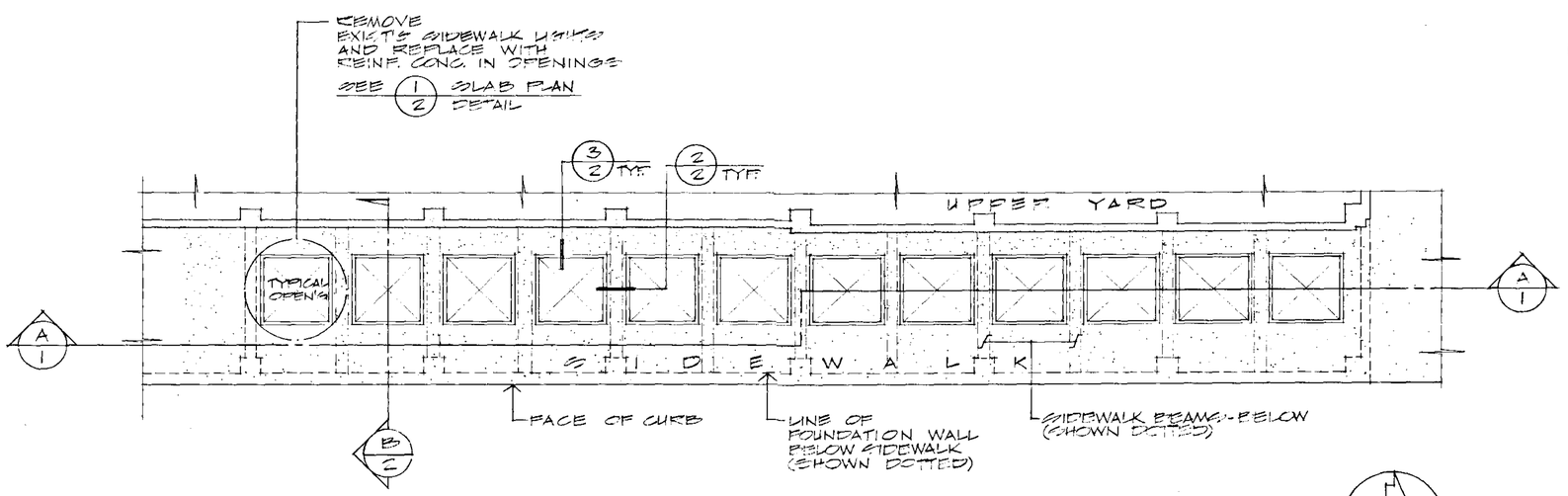
A/1 SECTION / SIDEWALK AND SIDEWALK LIGHTS
(HAMPSHIRE STREET) SCALE - 1/4" = 1'-0"



LOCATION PLAN NO SCALE



1/1 TYPICAL DETAIL
WATERPROOF SYSTEM (STONHARD)
NO SCALE



PLAN
SCALE: 1/8"=1'-0"

Z

NO.	DATE	DESCRIPTION	BY	APPR'D.
		REVISIONS		

CONTRACT NO. M.R. 955

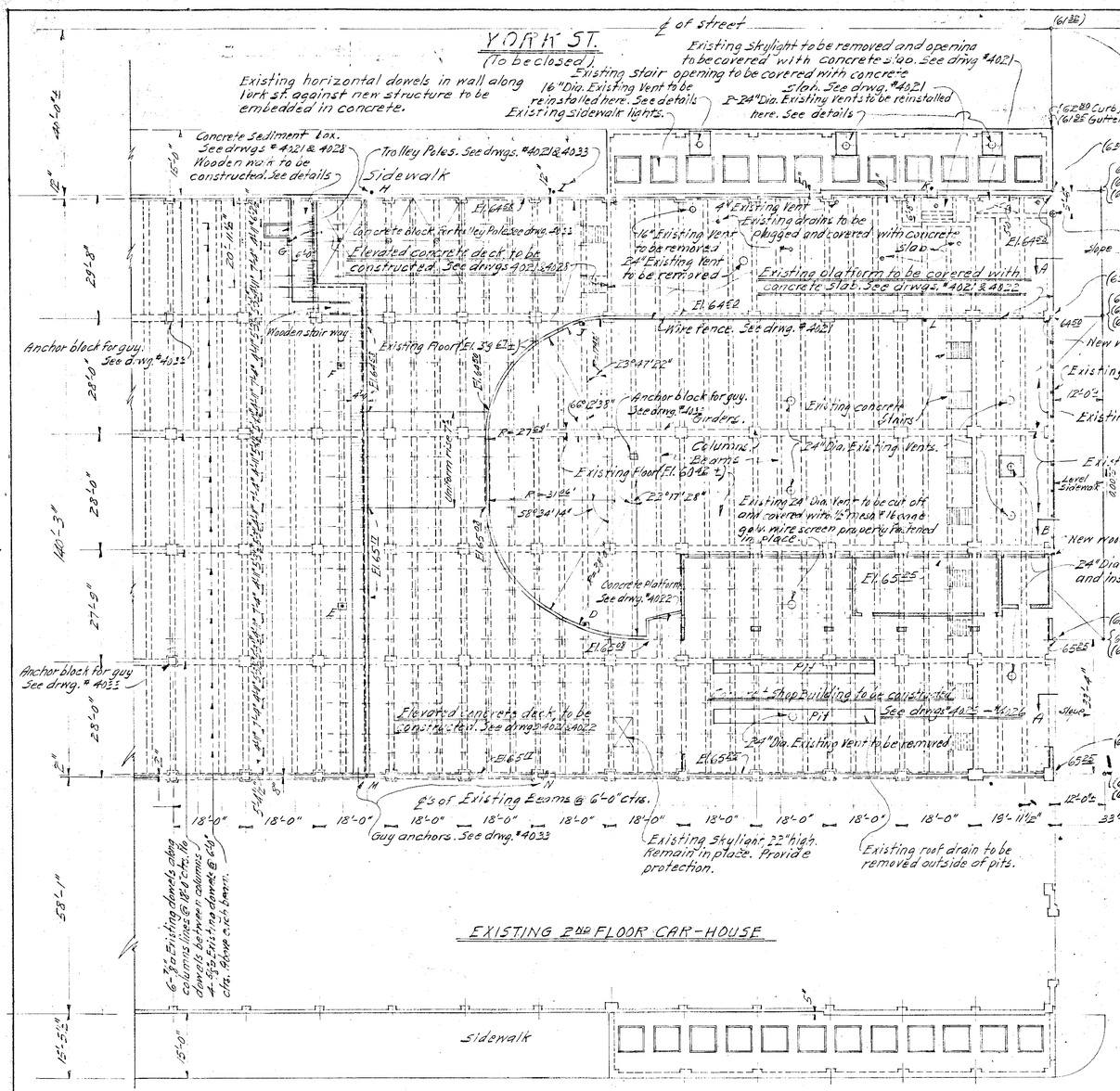
CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO MUNICIPAL RAILWAY

HAMPSHIRE STREET
SIDEWALK ROOF WATERPROOFING
PLAN & SECTION
17 th & HAMPSHIRE ST., SAN FRANCISCO, CA.

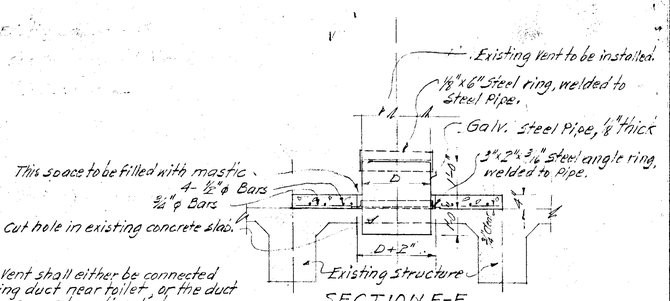
RECOMMENDED	BY	TR. KL	SCALE AS SHOWN
APPROVED	CH.	DATE 4-23-1996	
APPROVED DEPUTY GENERAL MANAGER	DRAWING NO. CL-8344	REVISION NO. C	

SHEET 1 OF 2 SHEETS

BAY REPROGRAPHIC REORDER NO. 91598

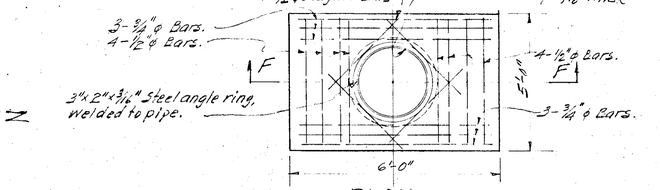


Note: Unless otherwise shown or noted the figures in parenthesis thus (64.82) represent existing elevations or grades. All figures without parenthesis represent finished elevations of proposed work. Trolley pole locations, shown thus E. K etc. For details of anchoring see drwg. #4033.



Note: 16" Vent shall either be connected to existing duct near toilet, or the duct shall be removed, as directed.

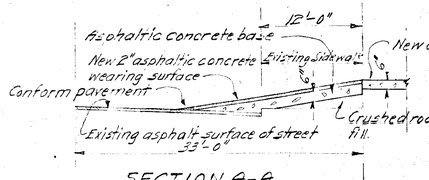
SECTION F-F



PLAN

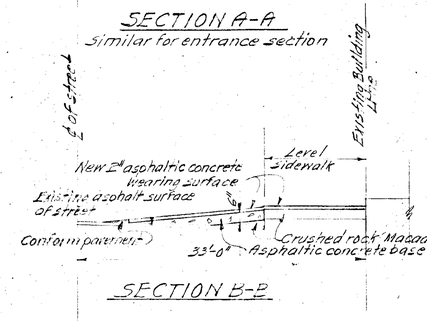
DETAILS FOR REINSTALLING EXISTING VENTS

Scale: ½"=1'-0"



SECTION A-A

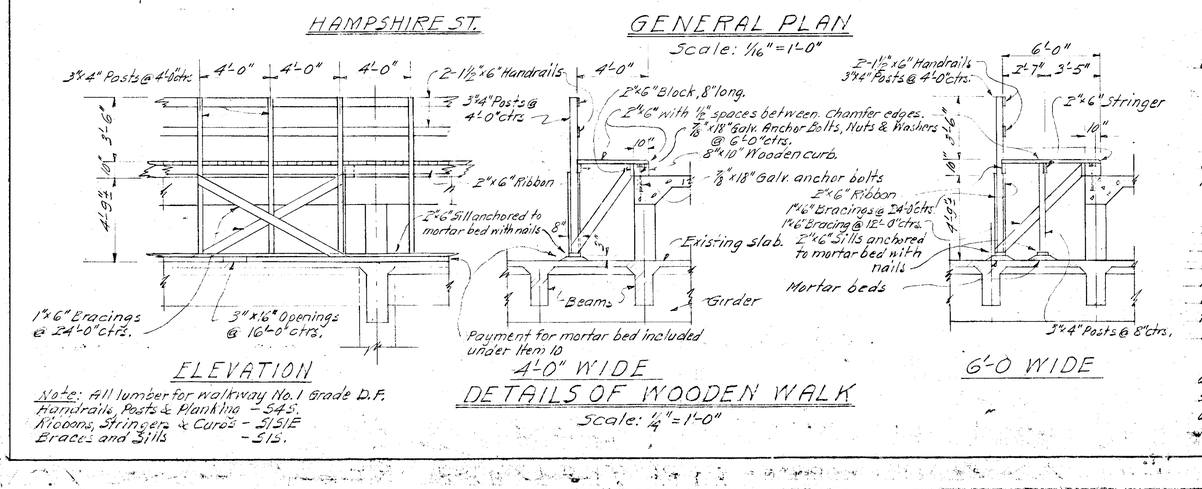
Similar for entrance section



SECTION B-B

LIST OF DRAWINGS

Drawing No.	
4020	General Plan and Details
4021	Elevated Deck - Plan and Concrete Details
4022	Elevated Deck - Concrete Details
4023	Concrete Shop Building - Plan of Substructure
4024	Concrete Shop Building - Plan and Elevations
4025	Concrete Shop Building - Substructure & Building Details
4026	Concrete Shop Building - Roof Plan and Details
4027	Concrete Shop Building - Miscellaneous Details
4028	Plumbing & Piping - Sewer and Drainage Systems.
4029	Plumbing & Piping - Water, Gas, Air & Lubricating Systems
4030	Electrical Work - New Service & Switchboard, Light & Power
4031	Electrical Work - Light & Power for Shop Building
4032	Trolley Service Platform
4033	Trolley Pole Supports and Guy Anchors.



GENERAL NOTES

THESE NOTES APPLY TO ALL DRAWINGS AND GOVERN UNLESS OTHERWISE SHOWN OR NOTED.

DATUM: All elevations shown on the plans are referred to datum, which is a bench mark marked "B.M." on Drawing 4020 and is located 5'-6" east of the northwest corner of the existing building at York St. The assumed elevation of this B.M. is taken as elevation 64.00.

CONSTRUCTION JOINTS: The location and type of all proposed construction joints must be approved by the Engineer prior to starting work. At all construction joints in exterior walls, form keys in face of pour by setting pieces of 2"x4", 1'-6" long every 3'-0" on centers along the center of wall in the freshly poured concrete. The 2"x4" pieces are to be removed after concrete has set.

REINFORCING STEEL: Bars shall be kept apart a clear distance of 1½ diameters at splices and shall NOT be tied together unless such tie is authorized by the Engineer. Stagger adjacent laps wherever practicable.

GENERAL NOTES

COVER OF REINFORCING: The following is the clear distance from face of concrete to reinforcing steel: Walls 1"; Columns and Piers 1" to ties; Beams and Spandrels 1" to Stirrups; 6" and 8" thick Slabs 1"; 4" Slabs ¾"; Top of Parapet 2".

All reinforcing steel shall be rigidly supported away from the forms by means of metal spreaders, and/or the wires. No wall ties or spreaders shall extend closer than 1" to face of concrete.

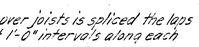
BAR SUPPORTS: Walls reinforced with steel in each face shall have curtain spreaders of not over 4'-0" on centers each way.

Joists shall have 3 "Snap-in" type joist bar chairs per span.

Beams and Girders shall have beam chairs at not over 5'-0" on centers.

All slab steel shall be rigidly supported by means of "Snap-in" type low slab chairs and continuous high chairs.

Where mesh in slabs over joists is spliced the laps shall be tied together at 1'-0" intervals along each edge, staggered, thus:



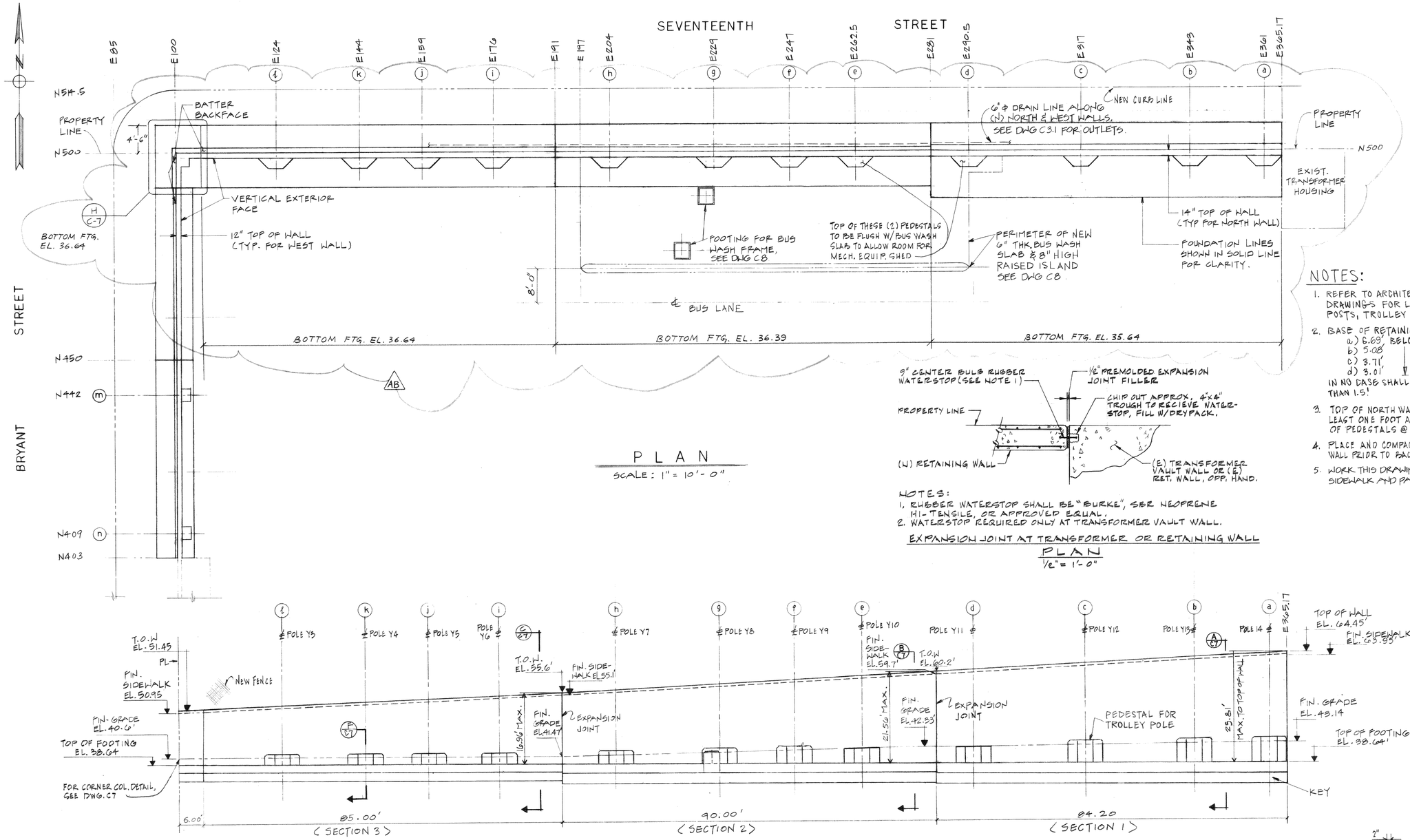
Former Electric Power Bureau No. 4020

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
ELECTRIC POWER BUREAU

ADDITIONS TO 17TH STREET CAR HOUSE
GENERAL PLAN AND DETAILS

SCALE As Shown	BY V. Belkin	DR N. B.	DATE Feb. 1940
APPROVED	CK	CH G. W.	REVISED
APPROVED			DRAWING No. DL-4329

GENERAL MANAGER AND CHIEF ENGINEER



PLAN

SCALE: 1" = 10'-0"

NOTES:
1. RUBBER WATERSTOP SHALL BE "BURKE", SER NEOPRENE HI-TENSILE, OR APPROVED EQUAL.
2. WATERSTOP REQUIRED ONLY AT TRANSFORMER VAULT WALL.

EXPANSION JOINT AT TRANSFORMER OR RETAINING WALL

PLAN

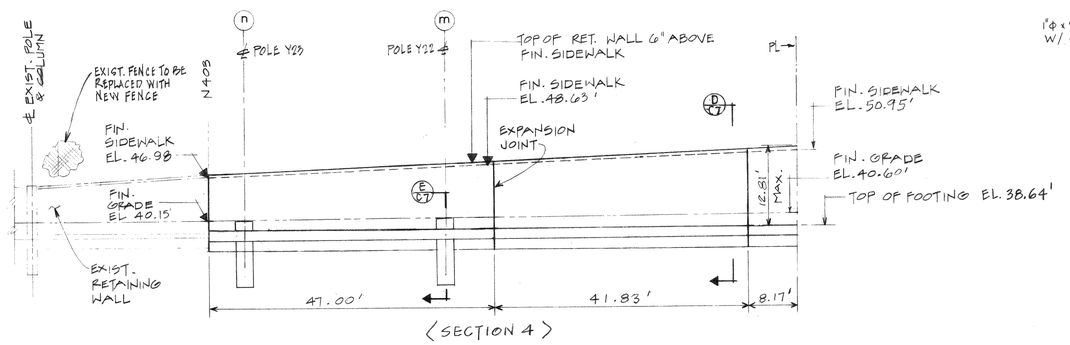
½" = 1'-0"

NOTES:

1. REFER TO ARCHITECTURAL, OVERHEAD, AND ELECTRICAL DRAWINGS FOR LOCATION AND/OR SIZE OF FENCE POSTS, TROLLEY POLES AND LIGHT POLES.
2. BASE OF RETAINING WALL FOOTING TO BE AT LEAST
   a) 6.69' BELOW FINISHED GRADE FOR SECTION 1
   b) 5.08' 2
   c) 3.71' 3
   d) 3.01' 4
   IN NO CASE SHALL SOIL COVER, ON THE YARD SIDE BE LESS THAN 1.5'
3. TOP OF NORTH WALL TROLLEY POLE PEDESTALS TO BE AT LEAST ONE FOOT ABOVE FINISH GRADE WITH THE EXCEPTION OF PEDESTALS @ E262.5 & @ E290.5
4. PLACE AND COMPACT BACKFILL IN FRONT OF THE RETAINING WALL PRIOR TO BACKFILLING BEHIND THE WALL.
5. WORK THIS DRAWING WITH DWG C3.1 FOR TOP OF FINISHED SIDEWALK AND PAVEMENT ELEVATIONS.

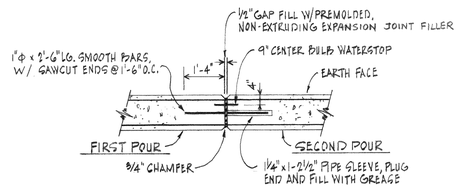
YARD ELEVATION LOOKING NORTH

SCALE: 1" = 10'-0"



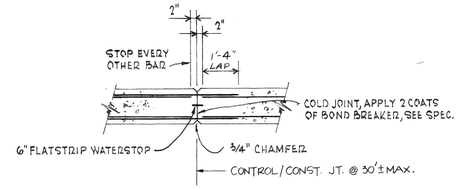
YARD ELEVATION LOOKING WEST

SCALE: 1" = 10'-0"



PLAN - EXPANSION JOINT

SCALE: ½" = 1'-0"



PLAN - CONTROL/CONSTRUCTION JOINT

SCALE: ½" = 1'-0"

C-6

CONTRACT NO. MR-869

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
UTILITIES ENGINEERING BUREAU

MUNI-POTRERO DIV. REHABILIATION

RETAINING WALL PLAN & ELEVATIONS

RECOMMENDED: DESIGNED BY JF; DR. IS/GP; SCALE AS SHOWN
APPROVED: CHECKED BY JC; TR.; DATE 11-1-89
APPROVED: for D.F.K. MANAGER UTILITIES ENGINEERING BUREAU
APPROVED: GENERAL MANAGER MUNICIPAL RAILWAY

SHEET 8 OF 117 | DRAWING NO. DL-9808 | REVISION NO. AB

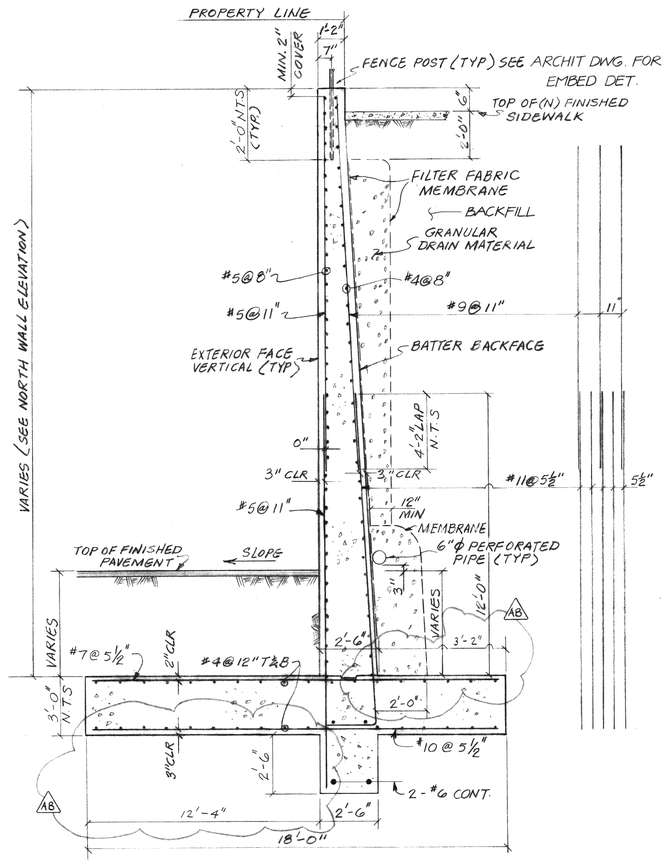
AS BUILT

ELEVATION DATUM

NO	DATE	DESCRIPTION	BY	APPR'D
A	6/24/94	AS BUILT	HL	
A	5-93	AS BUILT	JF	

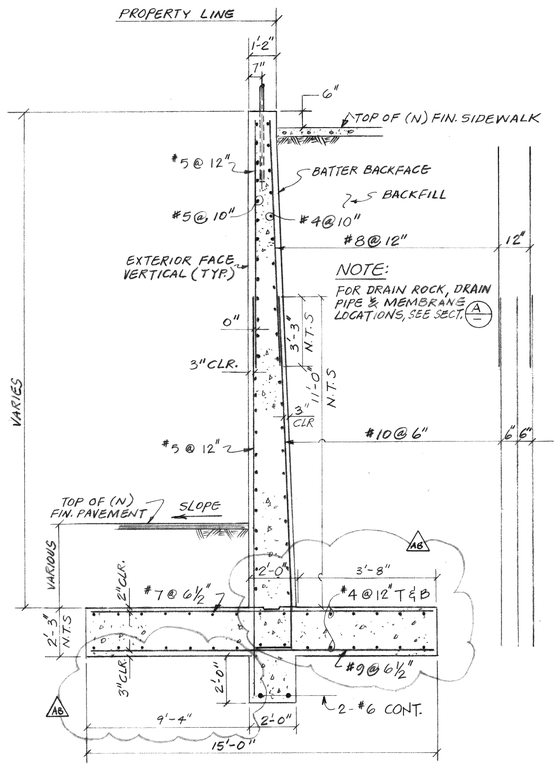
REVISIONS

REGISTERED PROFESSIONAL ENGINEER — HAROLD KUN CHEUNG — CIVIL — CE 29024 — STATE OF CALIFORNIA



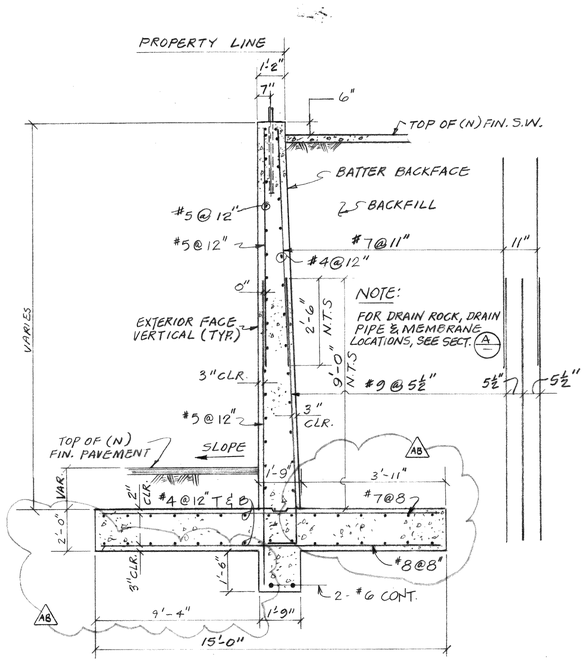
SECTION (A / C6)

(TYP. FOR WALL FROM E-281 TO E-365)



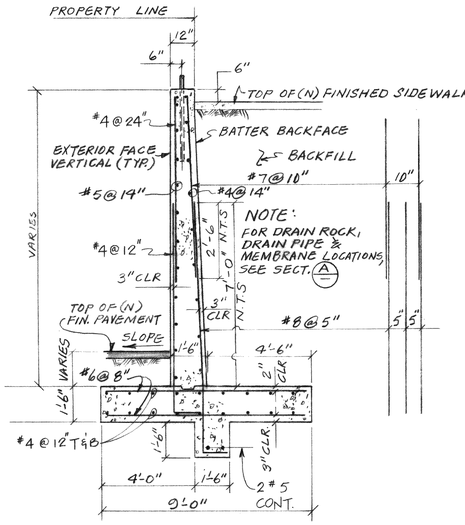
SECTION (B / C6)

(TYP. FOR WALL FROM E-191 TO E-281)



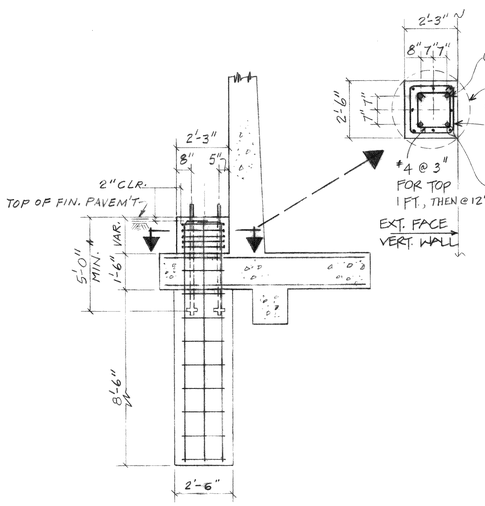
SECTION (C / C6)

(TYP. FOR WALL FROM E-106 TO E-191)



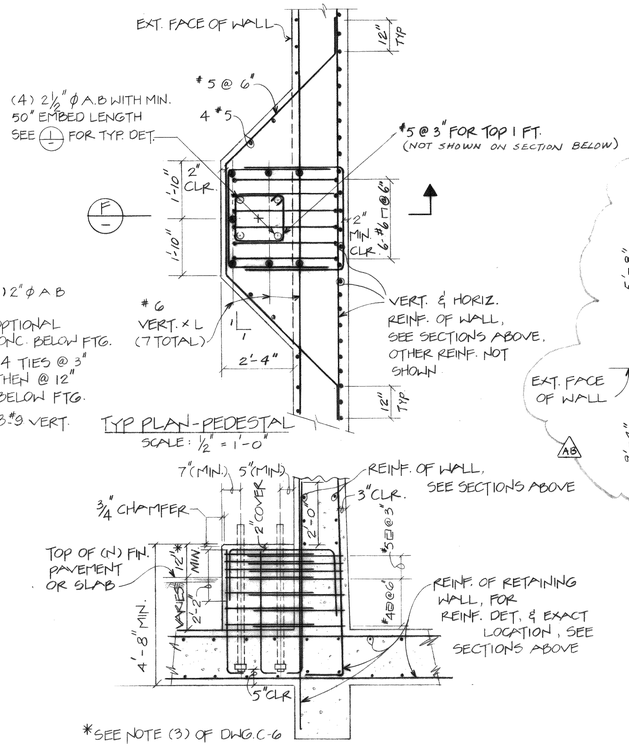
SECTION (D / C6)

(TYP. FOR WALL FROM N-403 TO N-491.8)



TYP. SECTION (E / C6)

SCALE: 3/8" = 1'-0"

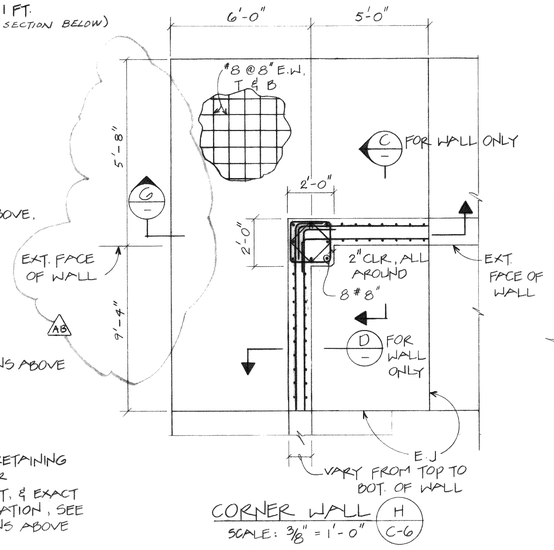


TYP PLAN-PEDESTAL

SCALE: ½" = 1'-0"

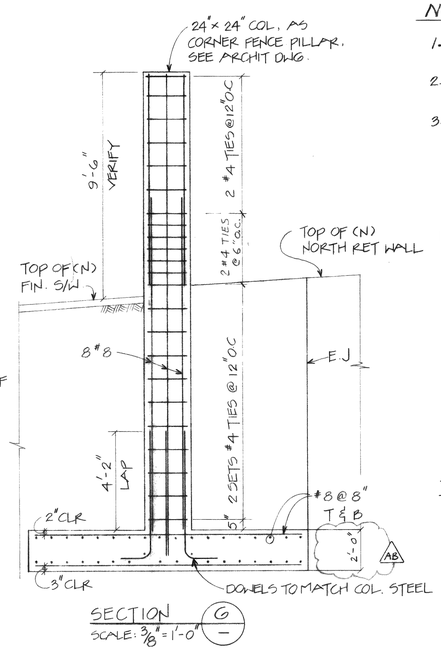
SECTION (F / C6)

SCALE: ½" = 1'-0"



CORNER WALL (H / C-6)

SCALE: 3/8" = 1'-0"

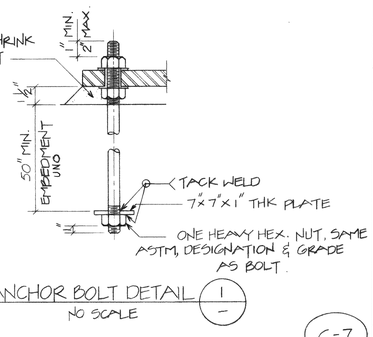


SECTION (G / -)

SCALE: 3/8" = 1'-0"

NOTE:

1. ¼" MASTIC JOINT BETWEEN PAVEMENT AND RETAINING WALL.
2. ANCHOR BOLTS AND NUTS SHALL CONFORM TO ASTM A307.
3. ANCHOR BOLTS SHALL NOT BE TIGHTENED UNTIL AT LEAST 14 DAYS HAVE ELAPSED AFTER PLACING OF CONCRETE.



TYP. ANCHOR BOLT DETAIL (1 / -)

NO SCALE

C-7

CONTRACT NO. MR-869

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
UTILITIES ENGINEERING BUREAU

MUNI-POTRERO DIV. REHABILITATION

RETAINING WALL SECTIONS & DETAILS

RECOMMENDED: [signature] MANAGER, UTILITIES ENGINEERING BUREAU

DESIGNED BY: JF | DR: G/N/L | SCALE: 3/8" U.O.N
CHECKED BY: RV | TR: | DATE: 11-1-89

APPROVED: [signature] GENERAL MANAGER, PUBLIC UTILITIES COMMISSION

APPROVED: Johnson & Stein, MUNICIPAL RAILWAY

DRAWING NO. DL-9809 | REVISION NO. AS

SHEET 9 OF 117

REGISTERED PROFESSIONAL ENGINEER, RICHARD KUN CHAN, CE 29024, STATE OF CALIFORNIA, EXP. 6-30-93

AS BUILT

ELEVATION DATUM

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR'D
AS	7/11/94	AS BUILT	HL	
AS	5-93	AS BUILT	J F	

10-16-89

JE 5/93

APPENDIX B

LOGS OF TEST BORINGS BY OTHERS

DRAFT

LOG OF TEST BORING 1

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	16.3	109	0		55*	ASPHALTIC CONCRETE - 4" thick RED-BROWN CLAYEY GRAVEL (GC) dense, moist (fill) BROWN CLAYEY SAND (SC) dense, moist
			5			NO GROUNDWATER ENCOUNTERED DURING DRILLING
			10			
			15			

UC = UNCONFINED COMPRESSIVE SHEAR STRENGTH (psf)
PI = PLASTICITY INDEX (%)
LL = LIQUID LIMIT (%)

SAMPLER TYPES:
CALIFORNIA DRIVE
O.D.: 2.5 inches
I.D.: 2.0 inches

*MODIFIED CALIFORNIA DRIVE
O.D.: 3.0 inches
I.D.: 2.5 inches

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches
(Test borings 1-8)

LOG OF TEST BORING 2

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
	15.9	109	0		51*	ASPHALTIC CONCRETE - 4" thick RED-BROWN CLAYEY SAND (SC) dense, moist, with gravel (fill) MOTTLED ORANGE AND BROWN CLAYEY SAND (SC) dense, moist
			5			NO GROUNDWATER ENCOUNTERED DURING DRILLING
			10			
			15			

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MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 2

LOG OF TEST BORING 3

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 4" thick RED-BROWN CLAYEY GRAVEL (GC) dense, moist (fill)
	16.7	115	5		90*	ORANGE-BROWN CLAYEY SAND (SC) dense, moist NO GROUNDWATER ENCOUNTERED DURING DRILLING
			10			
			15			

LOG OF TEST BORING 4

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 4" thick RED-BROWN CLAYEY GRAVEL (GC) dense, moist (fill)
	15.5	111	5		41*	MOTTLED ORANGE AND BROWN CLAYEY SAND (SC) medium dense, moist NO GROUNDWATER ENCOUNTERED DURING DRILLING
			10			
			15			

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MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED	PLATE
473.002	1/20/89		3

LOG OF TEST BORING 5

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 4" thick
PI = 4%						BROWN SANDY CLAY (CL-ML)
LL = 19%	16.7	106			8*	soft, moist (fill)
UC = 140 psf	19.2	97			3*	
			5		3*	
						ORANGE-BROWN CLAYEY SAND (SC)
						medium dense, moist
			10			
	16.8	109			20*	
						becomes dense
	18.5	90	15		74*	
	20.1	104	20		39*	
						NO GROUNDWATER ENCOUNTERED DURING DRILLING
			25			
			30			
			35			
			40			

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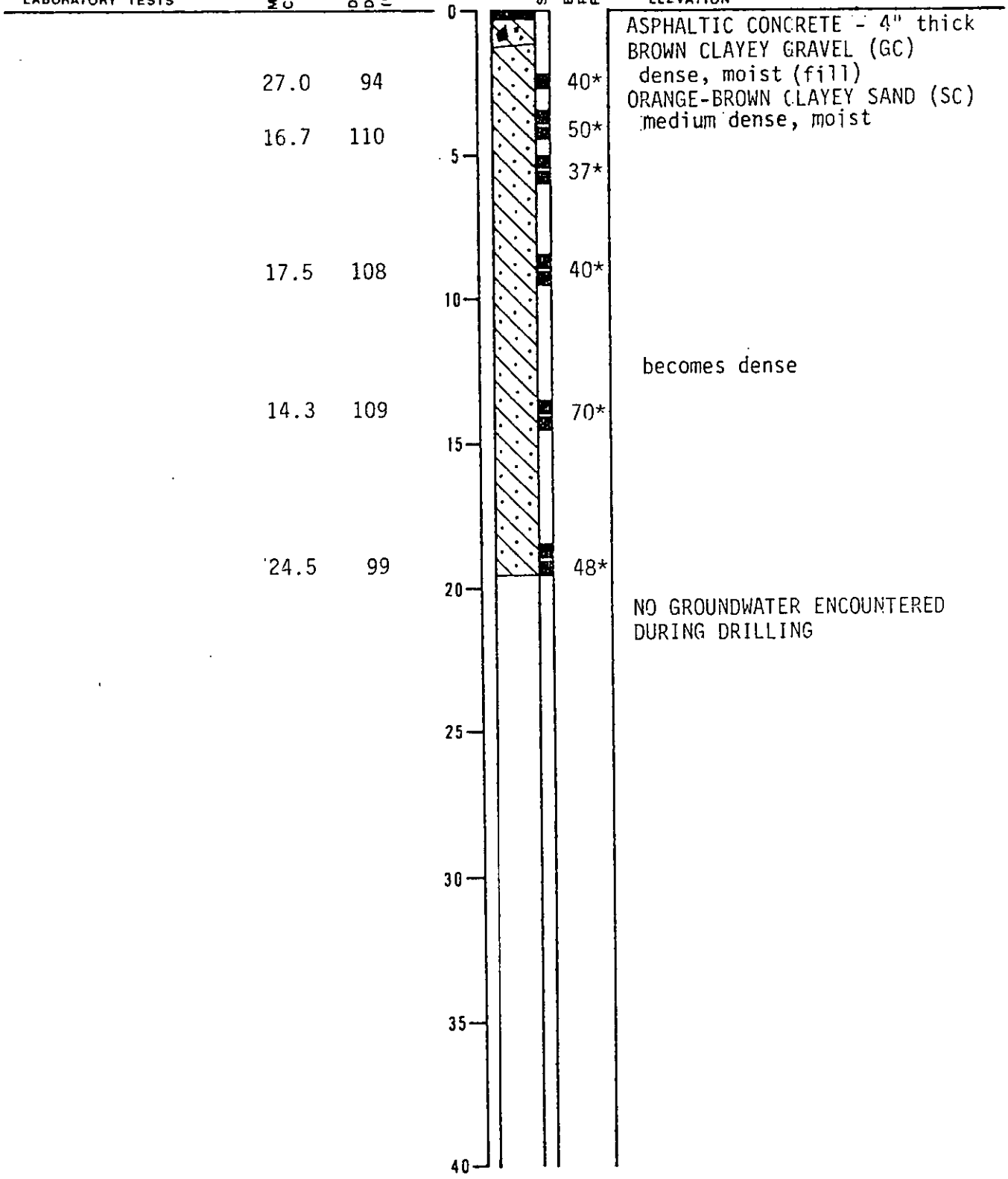
MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 4

LOG OF TEST BORING 6

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/5/89
ELEVATION --



Subsurface Consultants

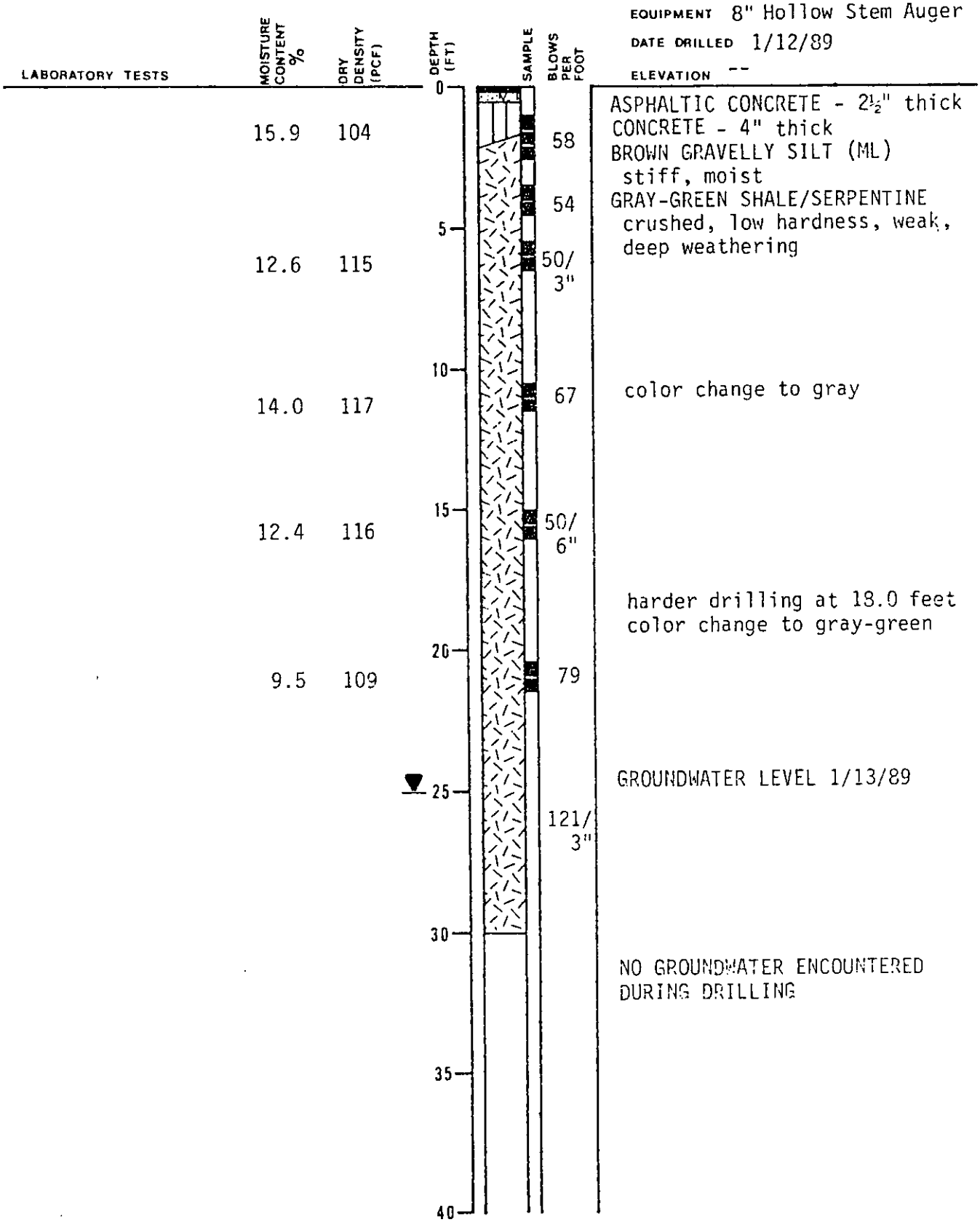
MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 5

LOG OF TEST BORING 7

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 1/12/89
ELEVATION --



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MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 6

LOG OF TEST BORING 9

EQUIPMENT 6" Solid Flight Auger
DATE DRILLED 1/12/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			CONCRETE - 12" thick
					17/ 4"	GREEN SHALE/SERPENTINE intensely fractured, low hardness, weak, deep weathering
	22.5	91			50/ 4"	
			5		50/ 6"	
	21.9	95			50/ 6"	
			10			NO GROUNDWATER ENCOUNTERED DURING DRILLING
			15			

HAMMER WEIGHT: 150 pounds
HAMMER DROP: 27 inches
(Test borings 9-11)

LOG OF TEST BORING 10

EQUIPMENT 6" Solid Flight Auger
DATE DRILLED 1/18/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 3" thick
					7	RED-BROWN CLAYEY GRAVEL (GC) loose, moist (fill)
UC = 3100 psf	20.4	107			20	LIGHT BROWN CLAYEY SAND (SC) loose, moist
			5			ORANGE-GRAY SANDY CLAY (CL)
	14.7	106			48	stiff, moist
						ORANGE-BROWN CLAYEY SAND (SC) dense, moist
			10			
	27.2	87			34	
						NO GROUNDWATER ENCOUNTERED DURING DRILLING
			15			

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MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER 473.002 | DATE 1/18/89 | APPROVED

PLATE 8

LOG OF TEST BORING 11

EQUIPMENT 6" Solid Flight Auger
DATE DRILLED 1/18/89
ELEVATION --

LABORATORY TESTS	MOISTURE CONTENT %	DRY DENSITY (PCF)	DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
			0			ASPHALTIC CONCRETE - 3" thick
						DARK BROWN CLAYEY GRAVEL (GC) loose, moist(fill)
	20.0	107			21	LIGHT ORANGE-GRAY SANDY CLAY (CL) stiff, moist
	19.2	106			23	
			5		25	
						ORANGE-BROWN CLAYEY SAND (SC) dense, moist
	20.1	107	10		54	
						NO GROUNDWATER ENCOUNTERED DURING DRILLING
			15			
			20			
			25			
			30			
			35			
			40			

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MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 9

GENERAL SOIL CATEGORIES			SYMBOLS	TYPICAL SOIL TYPES
COARSE GRAINED SOILS More than half is larger than No. 200 sieve	GRAVEL More than half coarse fraction is larger than No. 4 sieve size	Clean Gravel with little or no fines	GW	Well Graded Gravel, Gravel-Sand Mixtures
			GP	Poorly Graded Gravel, Gravel-Sand Mixtures
		Gravel with more than 12% fines	GM	Silty Gravel, Poorly Graded Gravel-Sand-Silt Mixtures
			GC	Clayey Gravel, Poorly Graded Gravel-Sand-Clay Mixtures
	SAND More than half coarse fraction is smaller than No. 4 sieve size	Clean sand with little or no fines	SW	Well Graded Sand, Gravelly Sand
			SP	Poorly Graded Sand, Gravelly Sand
		Sand with more than 12% fines	SM	Silty Sand, Poorly Graded Sand-Silt Mixtures
			SC	Clayey Sand, Poorly Graded Sand-Clay Mixtures
FINE GRAINED SOILS More than half is smaller than No. 200 sieve	SILT AND CLAY Liquid Limit Less than 50%		ML	Inorganic Silt and Very Fine Sand, Rock Flour, Silty or Clayey Fine Sand, or Clayey Silt with Slight Plasticity
			CL	Inorganic Clay of Low to Medium Plasticity, Gravelly Clay, Sandy Clay, Silty Clay, Lean Clay
			OL	Organic Clay and Organic Silty Clay of Low Plasticity
	SILT AND CLAY Liquid Limit Greater than 50%		MH	Inorganic Silt, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silt
			CH	Inorganic Clay of High Plasticity, Fat Clay
			OH	Organic Clay of Medium to High Plasticity, Organic Silt
HIGHLY ORGANIC SOILS			PT	Peat and Other Highly Organic Soils

UNIFIED SOIL CLASSIFICATION SYSTEM

Subsurface Consultants

MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 10

BEDDING OF SEDIMENTARY ROCKS

Very thick-bedded	Greater than 4.0	Bed thickness in feet
Thick-bedded	2.0 to 4.0	
Thin-bedded	0.2 to 2.0	
Very thin-bedded	0.05 to 0.2	
Laminated	0.01 to 0.05	
Thinly laminated	less than 0.01	

FRACTURING

Very little fractured	Greater than 4.0	Size of pieces in feet
Occasionally fractured	1.0 to 4.0	
Moderately fractured	0.5 to 1.0	
Closely fractured	0.1 to 0.5	
Intensely fractured	0.05 to 0.1	
Crushed	less than 0.05	

HARDNESS

Soft	reserved for plastic material alone.
Low hardness	can be gouged deeply or carved easily with a knife blade.
Moderately hard	can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
Hard	can be scratched with difficulty; scratch produces little powder and is often faintly visible.
Very hard	cannot be scratched with knife blade; leaves a metallic streak.

STRENGTH

Plastic	very low strength.
Friable	crumbles easily by rubbing with fingers.
Weak	an unfractured specimen of such material will crumble under light hammer blows.
Moderately strong	specimen will withstand a few heavy hammer blows before breaking.
Strong	specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
Very strong	specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

WEATHERING

Deep	moderate to complete mineral decomposition, extensive disintegration, deep and thorough discoloration, many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.
Moderate	slight change or partial decomposition of minerals, little disintegration: cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.
Little	no megascopic decomposition of minerals; little or no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.
Fresh	unaffected by weathering agents. No disintegration or discoloration. Fractures usually less numerous than joints.

ROCK CLASSIFICATION CRITERIA

Subsurface Consultants

MUNI-POTRERO - SAN FRANCISCO, CA

JOB NUMBER	DATE	APPROVED
473.002	1/20/89	

PLATE 11

EQUIPMENT: **6" Flight Auger** ELEVATION: **

LOGGED BY: **A. Gruen** START DATE: **7-30-98**

FINISH DATE: **7-30-98**

Other Laboratory Tests	Pocket Penetrometer (ksf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200 sieve	Blows/Foot	Sample	DEPTH (FEET)	
							0	1" AC Paving
							1	BROWN CLAYEY SAND (SC), medium dense to dense, moist to wet
							2	
					38		3	
		19.5		30			4	
					28		5	
		48.6		44			6	- rock fragments
							7	
							8	SERPENTINE, soft to moderately hard, plastic to weak, moderately weathered
							9	
							10	
					46		11	
		24.4		11			12	Drilling Refusal

BOTTOM OF BORING 1 @ 12 FEET
No Free Water Encountered

** Existing ground surface at time of drilling.

Earth Mechanics
Consulting Engineers

Job No: 98-1127
Appr:
Drwn: CD
Date: SEP 1998

LOG OF BORING 1

2440 Mariposa Street

San Francisco, California

PLATE **2**

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POOORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

			Shear Strength, psf / Confining Pressure, psf	
Consol	Consolidation	Tx	2630 (240)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	Tx sat	2100 (575)	Unconsolidated Undrained Triaxial, saturated prior to test
PL	Plastic Limit (in %)	DS	3740 (960)	Unconsolidated Undrained Direct Shear
PI	Plasticity Index	TV	1320	Torvane Shear
Gs	Specific Gravity	UC	4200	Unconfined Compression
SA	Sieve Analysis	LVS	500	Laboratory Vane Shear
■	Undisturbed Sample (2.5-inch ID)	FS	Free Swell	
◪	2-inch-ID Sample	EI	Expansion Index	
◧	Standard Penetration Test	Perm	Permeability	
☒	Bulk Sample	SE	Sand Equivalent	

KEY TO TEST DATA

Earth Mechanics
Consulting Engineers

Job No: 98-1127
Appr:
Drwn: CD
Date: SEP 1998

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
2440 Mariposa Street
San Francisco, California

PLATE 3

PROJECT: **480 POTRERO AVENUE**
San Francisco, California

Log of Boring B-2

Boring location: See Site Plan, Figure 2 | Logged by: M. Pinheiro

Date started: 12/6/04 | Date finished: 12/6/04

Drilling method: Minute Man Rig; 4" Solid Auger

Hammer weight/drop: 140 lbs./30-inches | Hammer type:

Sampler: Sprague & Henwood (S&H), Standard Penetration Test (SPT)

LABORATORY TEST DATA

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
					Ground Surface Elevation: 50.5 feet[2]						
					8.5-inches Concrete Slab						
1	S&H		10	CL	SANDY CLAY with GRAVEL (CL) yellow brown and brown, stiff, moist					16.0	105
2					FILL						
3	S&H		8	CL	SANDY CLAY (CL) dark brown, medium stiff to stiff, moist						
4											
5				CH	CLAY (CH) yellow brown, medium stiff to stiff, most						
6	S&H		30/4"		SERPENTINITE green brown, completely weathered, weak, soft, plastic						
7											
8	SPT		60/4"		deeply weathered						
9											
10											

Boring terminated at a depth of 8.5 feet below ground surface.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.

[1] S&H blow counts converted to SPT N-Values using a factor of 0.6.
[2] Elevations based on San Francisco City datum.

Treadwell&Rollo

Project No.: 4048.01 | Figure: A-2

TEST GEOTECH LOG 404801.GPJ TR.GDT 12/21/04

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Symbols	Typical Names
Coarse-Grained Soils (more than half of soil > no. 200 sieve size)	**Gravels** (More than half of coarse fraction > no. 4 sieve size)	**GW**	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (More than half of coarse fraction < no. 4 sieve size)	**SW**	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
Fine -Grained Soils (more than half of soil < no. 200 sieve size)	**Silts and Clays** LL = < 50	**ML**	Inorganic silts and clayey silts of low plasticity, sandy silts, gravelly silts
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and Clays LL = > 50	**MH**	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic silts and clays of high plasticity
Highly Organic Soils		**PT**	Peat and other highly organic soils

GRAIN SIZE CHART

Classification	Range of Grain Sizes	
	U.S. Standard Sieve Size	Grain Size in Millimeters
Boulders	Above 12"	Above 305
Cobbles	12" to 3"	305 to 76.2
Gravel	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
Sand	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
Silt and Clay	Below No. 200	Below 0.074

Unstabilized groundwater level

Stabilized groundwater level

SAMPLE DESIGNATIONS/SYMBOLS

Sample taken with Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter. Darkened area indicates soil recovered

Classification sample taken with Standard Penetration Test sampler

Undisturbed sample taken with thin-walled tube

Disturbed sample

Sampling attempted with no recovery

Core sample

Analytical laboratory sample

Sample taken with Direct Push sampler

SAMPLER TYPE

C Core barrel

CA California split-barrel sampler with 2.5-inch outside diameter and a 1.93-inch inside diameter

D&M Dames & Moore piston sampler using 2.5-inch outside diameter, thin-walled tube

O Osterberg piston sampler using 3.0-inch outside diameter, thin-walled Shelby tube

PT Pitcher tube sampler using 3.0-inch outside diameter, thin-walled Shelby tube

S&H Sprague & Henwood split-barrel sampler with a 3.0-inch outside diameter and a 2.43-inch inside diameter

SPT Standard Penetration Test (SPT) split-barrel sampler with a 2.0-inch outside diameter and a 1.5-inch inside diameter

ST Shelby Tube (3.0-inch outside diameter, thin-walled tube) advanced with hydraulic pressure

480 POTRERO AVENUE
San Francisco, California

CLASSIFICATION CHART

Treadwell&Rollo

Date 12/08/04 | Project No. 4048.01 | Figure A-3

I FRACTURING

Intensity	Size of Pieces in Feet
Very little fractured	Greater than 4.0
Occasionally fractured	1.0 to 4.0
Moderately fractured	0.5 to 1.0
Closely fractured	0.1 to 0.5
Intensely fractured	0.05 to 0.1
Crushed	Less than 0.05

II HARDNESS

1. **Soft** - reserved for plastic material alone.
2. **Low hardness** - can be gouged deeply or carved easily with a knife blade.
3. **Moderately hard** - can be readily scratched by a knife blade; scratch leaves a heavy trace of dust and is readily visible after the powder has been blown away.
4. **Hard** - can be scratched with difficulty; scratch produced a little powder and is often faintly visible.
5. **Very hard** - cannot be scratched with knife blade; leaves a metallic streak.

III STRENGTH

1. **Plastic** or very low strength.
2. **Friable** - crumbles easily by rubbing with fingers.
3. **Weak** - an unfractured specimen of such material will crumble under light hammer blows.
4. **Moderately strong** - specimen will withstand a few heavy hammer blows before breaking.
5. **Strong** - specimen will withstand a few heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.
6. **Very strong** - specimen will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments.

IV WEATHERING - The physical and chemical disintegration and decomposition of rocks and minerals by natural processes such as oxidation, reduction, hydration, solution, carbonation, and freezing and thawing.

D. Deep - moderate to complete mineral decomposition; extensive disintegration; deep and thorough discoloration; many fractures, all extensively coated or filled with oxides, carbonates and/or clay or silt.

M. Moderate - slight change or partial decomposition of minerals; little disintegration; cementation little to unaffected. Moderate to occasionally intense discoloration. Moderately coated fractures.

L. Little - no megascopic decomposition of minerals; little of no effect on normal cementation. Slight and intermittent, or localized discoloration. Few stains on fracture surfaces.

F. Fresh - unaffected by weathering agents. No disintegration of discoloration. Fractures usually less numerous than joints.

ADDITIONAL COMMENTS:

V CONSOLIDATION OF SEDIMENTARY ROCKS: usually determined from unweathered samples. Largely dependent on cementation.

U = unconsolidated
P = poorly consolidated
M = moderately consolidated
W = well consolidated

VI BEDDING OF SEDIMENTARY ROCKS

Splitting Property	Thickness	Stratification
Massive	Greater than 4.0 ft.	very thick-bedded
Blocky	2.0 to 4.0 ft.	thick bedded
Slabby	0.2 to 2.0 ft.	thin bedded
Flaggy	0.05 to 0.2 ft.	very thin-bedded
Shaly or platy	0.01 to 0.05 ft.	laminated
Papery	less than 0.01	thinly laminated

480 POTRERO AVENUE
San Francisco, California

Treadwell&Rollo

PHYSICAL PROPERTIES CRITERIA FOR ROCK DESCRIPTIONS

Date 12/14/04	Project No. 4048.01	Figure A-4

APPENDIX C

LOGS OF TEST BORINGS BY ARUP/RYCG

DRAFT

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-12-18; COMPLETION DATE: Mar-12-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106322.98418 / E6009541.52542 (NAD83)	HOLE ID: BH-01
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH, JT and WV	IN-SITU TESTING	SURFACE ELEVATION: 51.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-60.75')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time): 33 ft (3/12/2018)	TOTAL DEPTH OF BORING: 60.75 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	0		CONCRETE PAVEMENT (13") (CR).														
			SILTY SAND (SM); dark yellowish brown/dark reddish brown; fine; [FILL?].														
			SANDY CLAY interlayered with CLAYEY SAND (CL/SC); very stiff and medium dense; dark yellowish brown with black speckling; moist; fine SAND; [OLDER SEDIMENTARY DEPOSIT/COLMA FORMATION].		MC	S1	41	18	18	72.0			46	31			
46.80	5		CLAYEY SAND (SC); medium dense; dark yellowish brown; moist; fine.		MC	S2	44	18	15								
41.80	10		10.0', dense; decrease in CLAY content.		MC	S3	59	18	15	43.0	15	134	25	11	DS Phi´ = 40° c´ = 325 psf		
36.80	15		15.0', very dense.		SPT	S4	51	18	13								
31.80	20																

(continued)

ARUP/RYCG
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BOREHOLE NO. BH-01
SHEET 1 OF 4

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-12-18; COMPLETION DATE: Mar-12-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106322.98418 / E6009541.52542 (NAD83)	HOLE ID: BH-01
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH, JT and WV	IN-SITU TESTING	SURFACE ELEVATION: 51.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-60.75')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time): 33 ft (3/12/2018)	TOTAL DEPTH OF BORING: 60.75 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	20		POORLY GRADED SAND with CLAY (SP-SC); very dense; dark yellowish brown; moist; fine.		MC	S5	80/11"	17	14								
26.80	25		25.0', dense.		SPT	S6	46	18	15								
21.80	30		30.0', very moist.		MC	S7	59	18	15		26	120					Groundwater between 30' and 35', estimated at 33'.
			- hydrocarbon odor (like creosote) and dark oil droplets noticed in drilling mud at 33±.														
16.80	35		35.0', very dense; saturated; hydrocarbon odor in sample.		SPT	S8	54	18	18								
11.80	40																

(continued)

ARUP/RYCG
A Joint Venture

BOREHOLE NO. BH-01
SHEET 2 OF 4

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-12-18; COMPLETION DATE: Mar-12-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106322.98418 / E6009541.52542 (NAD83)	HOLE ID: BH-01
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH, JT and WV	IN-SITU TESTING	SURFACE ELEVATION: 51.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-60.75')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time): 33 ft (3/12/2018)	TOTAL DEPTH OF BORING: 60.75 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	40		POORLY GRADED SAND (SP); very dense; dark yellowish brown; saturated; fine; slight hydrocarbon odor in sample.		MC	S9	83/11"	17	15								
6.80	45		45.0', slight hydrocarbon odor.		SPT	S10	74	18	18								
1.80	50		SERPENTINITE (SRP); soft with moderately hard zones (H6/H4); olive gray, olive and very dark gray.		MC	S11	50/3"	9	9								
-3.20	55		55.0', black; highly to completely weathered (W4/W5), very weak (R1), soft to moderately soft (H6/H5), with white mineralization.		SPT	S12	50/5"	11	8								
-8.20	60																

(continued)

ARUP/RYCG
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1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-12-18; COMPLETION DATE: Mar-12-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106322.98418 / E6009541.52542 (NAD83)	HOLE ID: BH-01
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH, JT and WV	IN-SITU TESTING	SURFACE ELEVATION: 51.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-60.75')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time): 33 ft (3/12/2018)	TOTAL DEPTH OF BORING: 60.75 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks/ Other Tests
	60				MC	S13	70/3"	9	9		21	127			UU 1.4			
			Borehole terminated at depth of 60.75 feet.															
			See Borehole Log Legend for soil classification chart and key to test data and sampler type.															
-13.20	65																	
-18.20	70																	
-23.20	75																	
-28.20	80																	

ARUP/RYCG
A Joint Venture

BOREHOLE NO. BH-01
SHEET 4 OF 4

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	0		ASPHALT CONCRETE PAVEMENT, 2.5" (AC).														
			CONCRETE PAVEMENT, 6.5" (CR).														
			CLAYEY SAND (SC); medium dense; dark yellowish brown; moist; fine; very CLAYEY; [OLD SEDIMENTARY DEPOSIT/COLMA FORMATION].														
					MC	S1	26	18	18								
44.80	5																
			6.0', mottled with dark orange brown; decrease in CLAY content.		MC	S2	50	18	18	23.0	15	136	23	5			
39.80	10		POORLY GRADED SAND WITH CLAY (SP-SC); medium dense; dark yellowish brown mottled with dark orange brown; moist; fine; slight cementation.		MC	S3	42	18	16								
			CLAYEY SAND (SC); medium dense; dark yellowish mottled with dark orange brown; very moist to saturated; fine, very CLAYEY.														
34.80	15				MC	S4	25	18	13								
			SANDY FAT CLAY (CH/CL); very stiff; yellowish brown mottled with dark orange brown; saturated; fine SAND.								19	133			UU 3.3		
			CLAYEY SAND (SC); very dense; dark yellowish brown; very moist; fine.														
29.80	20																

(continued)

ARUP/RYCG
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BOREHOLE NO. BH-02
SHEET 1 OF 7

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	20				SPT	S5	51	18	17								
			POORLY GRADED SAND with SILT (SP-SM); dense; dark yellowish brown; moist; fine.														
24.80	25				MC	S6	58	18	14								
19.80	30		30.0', saturated.		SPT	S7	48	18	14								
14.80	35		35.0', no noticeable odors in sample.		MC	S8	58	18	14	11.0	23	125					
9.80	40																

(continued)

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	40				MC	S9	77	18	14								
										9.0	18	124			DS Phi´ = 37° c´ = 375 psf		
4.80	45																
			48.0', very dense.		SPT	S10	51	18	15								
-0.20	50																
-5.20	55		56.0', dense.		MC	S11	72	18	10								
											18	132					
-10.20	60																

(continued)

ARUP/RYCG
A Joint Venture

BOREHOLE NO. BH-02
SHEET 3 OF 7

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS (Depth (Date/Time))	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	60		60.0', very dense.		SPT	S12	84/12"	18	13								
-15.20	65																
			SHALE (SH); dark gray, light greenish gray, and black; highly weathered (W4), extremely to very weak (R0/R1), soft (H6) with moderately soft zones (H5), with white mineralization, crystallizing (HCL-), moderately soft zones with thin laminations, highly sheared; [BEDROCK - FRANCISCAN MELANGE].													
-20.20	70				MC	S13	50/2"	8	8								
-25.20	75		75.0', dark gray and black; variably weak to moderately strong (R2/R3), moderately soft (H5), with very thin laminations, quartz inclusions, altered/sheared appearance.		MC	S14	50/6"	12	12		4						75.0' - 80.0', No recovery Soft drilling Switch to HQ3 rock coring
-30.20	80																

(continued)

ARUP/RYCG
A Joint Venture

BOREHOLE NO. BH-02
SHEET 4 OF 7

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
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LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS (Depth (Date/Time))	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	80		SERPENTINITE MELANGE (SRP); black and dark gray; highly weathered (W4); very weak with weak zones and moderately strong clasts (R1/R2); soft to moderately soft (H6/H5); quartz inclusions; black zones with very thin friable foliation (altered shale?); dark gray moderately hard zones (SERPENTINITE); with clayey matrix (minor); saturated.														No recovery - gray clay in cuttings
					MC	S15	60	18	18								Switch to mud rotary with tricone bit. Drill out to 82.5' (too soft to core)
-35.20	85																
					MC	S16	72/6"	12	8								
-40.20	90																
-45.20	95		95.0', highly weathered with completely weathered clay zones.		MC	S17	90/10"	16	10								PP: 4.5 psf PP: >4.5 psf
-50.20	100																

(continued)

ARUP/RYCG
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BOREHOLE NO. BH-02
SHEET 5 OF 7

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	100		100.5', gray green; highly weathered (W4); very weak (R1); soft (H6); talc-like appearance (crumbles by hand pressure).		MC	S18	78/6"	12	11								
-55.20	105		105.0', dark gray; weak (R2); moderately soft (H5).		MC	S19	55/3"	9	9								
-60.20	110		110.0', dark gray and black; completely weathered (W5); extremely weak; very soft to soft (H7/H6); GRAVELLY CLAY with structure; some highly weathered, very weak zones.		MC	S20	70/6"	12	12								
-65.20	115		115.0', grayish green, dark grayish green, and dark gray; variably highly and completely weathered (W4/W5); extremely to very weak (R0/R1); soft (H6); variably saturated CLAY and moist talc-like (grayish green) highly weathered rock.		MC	S21	80/6"	12	12								
-70.20	120																

(continued)

ARUP/RYCG
A Joint Venture

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-13-18; COMPLETION DATE: Mar-14-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106029.09884 / E6009623.035692 (NAD83)	HOLE ID: BH-02
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH and WV	IN-SITU TESTING: Suspension velocity	SURFACE ELEVATION: 49.8 ft (SF-VD13)
DRILLING METHOD: GARBAGE BARREL(0'-3'), MUD ROTARY(3'-121'), CORE(75'-82.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4"), SPT(1.375")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 121 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
120					MC	S22	73/6"	12	12								
			Borehole terminated at depth of 121 feet.														
			See Borehole Log Legend for soil classification chart and key to test data and sampler type.														
-75.20	125																
-80.20	130																
-85.20	135																
-90.20	140																

ARUP/RYCG
A Joint Venture

BOREHOLE NO. BH-02
SHEET 7 OF 7

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-16-18; COMPLETION DATE: Mar-16-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106262.92825 / E6009772.481354 (NAD83)	HOLE ID: BH-03
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH, JT and WV	IN-SITU TESTING	SURFACE ELEVATION: 53.2 ft (SF-VD13)
DRILLING METHOD: HOLLOW STEM AUGER(0'-16')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 16 ft

Elevation (ft)	Depth (ft)	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	0	ASPHALT CONCRETE PAVEMENT (2.5") (AC).														
		CONCRETE (8") (CR).														
		SILTY GRAVEL (GM); gray brown; saturated; [FILL].														
		CLAYEY SAND (SC); medium dense; dark yellowish brown; moist; fine; [COLMA FORMATION].		B	S1		6	6								
48.20	5			MC	S2	32	18	18	25.0			27	8			
				MC	S3	50/6"	12	12		36	103			UU 0.85		
43.20	10	SERPENTINITE (SRP); olive brown and very dark gray; highly weathered (W4); weak to moderately strong (R2/R3); variably moderately soft to moderately hard (H5/H4); [BEDROCK].														
		14.0', highly to moderately weathered (W4/W3); moderately strong (R3); hard (H3); with moderately soft matrix (H5).		MC	S4	60/5"	5	4								
38.20	15															
		Borehole terminated at depth of 16 feet on auger refusal.														
		See Borehole Log Legend for soil classification chart and key to test data and sampler type.														
33.20	20															

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BOREHOLE NO. BH-03
SHEET 1 OF 1

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-15-18; COMPLETION DATE: Mar-15-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2105997.62975 / E6009865.763362 (NAD83)	HOLE ID: BH-04
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH	IN-SITU TESTING	SURFACE ELEVATION: 52.8 ft (SF-VD13)
DRILLING METHOD: HOLLOW STEM AUGER(0'-20.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 20.5 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method / Casing Depth	Remarks/ Other Tests
	0		CONCRETE DRIVEWAY (7") (CR).														
			SILTY GRAVEL (GM); gray and gray brown; slightly moist; [FILL].														
			CLAYEY GRAVEL (GC); dark brown; moist; sub angular and angular; with gravel to 1.5".		B	S1		12	12								
47.80	5		SILTY SAND with GRAVEL (SM); loose; dark yellowish brown; very moist; angular; with serpentinite gravel to 2".		MC	S2	12	18	16	49.0			67	29			
			SANDY LEAN CLAY (CL); medium stiff to stiff; mottled dark yellowish brown, brown and dark brown; saturated; with brown SANDY SILT inclusions; [FILL - DERIVED FROM NATIVE SOILS/COLMA FORMATION].		MC	S3	6	18	15								
42.80	10		CLAYEY SAND (SC); loose; mottled dark yellowish brown; saturated; fine; iron oxide staining; [OLD SEDIMENTARY DEPOSIT/COLMA FORMATION].		MC	S4	8	18	18	49.0	18	128	36	22	DS Phi´ = 29° c´ = 250 psf		
37.80	15		15.0', very clayey.														
			19.0', medium dense.		MC	S5	21	18	18								
32.80	20																

(continued)

ARUP/RYCG
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BOREHOLE NO. BH-04
SHEET 1 OF 2

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-15-18; COMPLETION DATE: Mar-15-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2105997.62975 / E6009865.763362 (NAD83)	HOLE ID: BH-04
DRILLING CONTRACTOR/DRILLER: Pitcher Drilling/WH	IN-SITU TESTING	SURFACE ELEVATION: 52.8 ft (SF-VD13)
DRILLING METHOD: HOLLOW STEM AUGER(0'-20.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 20.5 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks/ Other Tests
	20									42.0	20	128			DS Phi´ = 29° c´ = 450 psf			
			Borehole terminated at depth of 20.5 feet.															
			See Borehole Log Legend for soil classification chart and key to test data and sampler type.															
27.80	25																	
22.80	30																	
17.80	35																	
12.80	40																	

ARUP/RYCG
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BOREHOLE NO. BH-04
SHEET 2 OF 2

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-16-18; COMPLETION DATE: Mar-16-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106363.51629 / E6009975.414344 (NAD83)	HOLE ID: BH-05
DRILLING CONTRACTOR/DRILLER: Pitcher/FT,WV and JT	IN-SITU TESTING	SURFACE ELEVATION: 53.5 ft (SF-VD13)
DRILLING METHOD: HAND AUGER(0'-4.2')	DRILL RIG: Hand Auger	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID)	SPT HAMMER TYPE/HAMMER ID	HAMMER EFFICIENCY, ERi
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 4.2 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks/ Other Tests
	0		CONCRETE SLAB (7") (CR).															
			POORLY GRADED SAND with SILT and GRAVEL (SP-SM); dark brown; predominantly fine, trace of medium to coarse; with subrounded GRAVEL to 3"; [FILL].		B	S1		12	12									
			POORLY GRADED SAND (SP); dark yellowish brown; fine; [FILL?/NATIVE?].		B	S2		12	12									
48.50	5		Borehole terminated at depth of 4.2 feet on refusal of hand-auger on strata inferred to be Weathered Rock.															
			See Borehole Log Legend for soil classification chart and key to test data and sampler type.															
43.50	10																	
38.50	15																	
33.50	20																	

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BOREHOLE NO. BH-05
SHEET 1 OF 1

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-16-18; COMPLETION DATE: Mar-16-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106007.33927 / E6010016.556221 (NAD83)	HOLE ID: BH-06
DRILLING CONTRACTOR/DRILLER: Pitcher/FT,WV and JT	IN-SITU TESTING	SURFACE ELEVATION: 53.9 ft (SF-VD13)
DRILLING METHOD: HOLLOW STEM AUGER(0'-20.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 20.5 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks/ Other Tests
	0		ASPHALT CONCRETE PAVEMENT (4") (AC).															
			CONCRETE (9") (CR).															
			SILTY GRAVEL with SAND (GM); light gray brown and gray; slightly moist; angular GRAVEL to 1"; [FILL].															
			CLAYEY SAND (SC); dark brown; very moist; fine to coarse SAND; trace GRAVEL to 1/2".		B	S1		12	12									
48.90	5		SANDY LEAN CLAY (CL); stiff; dark yellowish brown mottled with brown; very moist to saturated; fine, trace medium; [NATIVE].		MC	S2	8	18	18	69.0	18	126	35	20				
			CLAYEY SAND with LEAN CLAY lenses (SC-CL); loose/stiff; dark gray brown; saturated; CLAY lens at 6.5'.															
			9.0', loose; dark gray brown mottled with dark yellowish brown; saturated; fine.		MC	S3	11	18	15									Free water, sampler wet, perched water?
43.90	10		10.5', SANDY CLAY lens.															
			POORLY GRADED SAND with CLAY (SP-SC); medium dense; olive brown; very moist (no free water); fine.		MC	S4	32	18	15	22.0	20	126			DS Phi´ = 34° c´ = 400 psf			
38.90	15		SERPENTINITE (SRP); dark greenish gray mottled with yellowish brown; completely weathered (W5); extremely weak (R0); very soft (H7); [BEDROCK].															
33.90	20				MC	S5	36	18	18									

(continued)

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BOREHOLE NO. BH-06
SHEET 1 OF 2

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

PROJECT NAME	PROJECT LOCATION	PROJECT NUMBER
SFMTA Potrero Facility Rebuild	**2500 Mariposa Street, San Francisco, California**	**260018**
LOGGED BY: R. Fisher; BEGIN DATE: Mar-16-18; COMPLETION DATE: Mar-16-18	BOREHOLE LOCATION (Lat/Long or North/East and Datum): N2106007.33927 / E6010016.556221 (NAD83)	HOLE ID: BH-06
DRILLING CONTRACTOR/DRILLER: Pitcher/FT,WV and JT	IN-SITU TESTING	SURFACE ELEVATION: 53.9 ft (SF-VD13)
DRILLING METHOD: HOLLOW STEM AUGER(0'-20.5')	DRILL RIG: Fraste MultidrillXL (Track)	BOREHOLE DIAMETER: 5.0 in
SAMPLER TYPE(S) AND SIZE(S) (ID): MC(2.4")	SPT HAMMER TYPE/HAMMER ID: Automatic, 140 lbs, 30-inch drop	HAMMER EFFICIENCY, ERi: 91%
BOREHOLE BACKFILL AND COMPLETION: Neat cement grout	GROUNDWATER READINGS Depth (Date/Time)	TOTAL DEPTH OF BORING: 20.5 ft

Elevation (ft)	Depth (ft)	Material Graphics	Description	Sample Location	Sampler Type	Sample Number	N-Value (bl/ft)	Penetration (in)	Recovery (in)	200 Wash (%)	Moisture Content (%)	Total Unit Wt. (pcf)	Liquid Limit (%)	Plasticity Index (%)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks/ Other Tests
	20		20.0', weathered to a stiff, hard CLAY.	⧓							21	129			UU 2.5			
			Borehole terminated at depth of 20.5 feet.															
			See Borehole Log Legend for soil classification chart and key to test data and sampler type.															
28.90	25																	
23.90	30																	
18.90	35																	
13.90	40																	

1.0.2B-BOREHOLE LOG (SOIL)-ARUP/RYCG JV GINT_POTRERO.GPJ ARUP-RYCG GINT LIBRARY.GLB 9/30/19

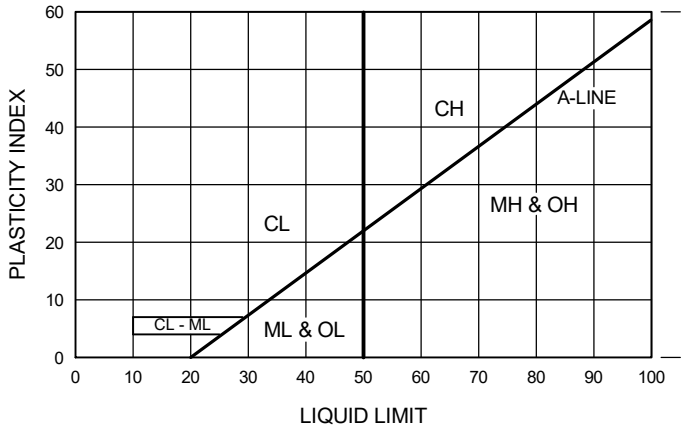
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INDEXED SOIL CLASSIFICATIONS

GRAPHIC	SYMBOL	DESCRIPTION	MAJOR DIVISIONS				
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	**CLEAN GRAVELS** (LITTLE OR NO FINES)	**GRAVELS** MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	FOR VISUAL CLASSIFICATION, THE 1/4" SIZE MAY BE USED AS EQUIVALENT TO THE NO.4 SIEVE SIZE	**COARSE-GRAINED SOILS** MORE THAN HALF OF MATERIAL IS LARGER THAN NO.200 SIEVE SIZE	THE NO.200 U.S. STANDARD SIEVE IS ABOUT THE SMALLEST PARTICLE VISIBLE TO THE NAKED EYE
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES					
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	**GRAVELS WITH FINES** (APPRECIABLE AMOUNT OF FINES)				
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES					
	SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES	**CLEAN SANDS** (LITTLE OR NO FINES)	**SANDS** MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE			
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES					
	SM	SILTY SANDS, SAND-SILT MIXTURES	**SANDS WITH FINES** (APPRECIABLE AMOUNT OF FINES)				
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES					
	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	**SILTS & CLAYS** LIQUID LIMIT LESS THAN 50			**FINE-GRAINED SOILS** MORE THAN HALF OF MATERIAL IS SMALLER THAN NO.200 SIEVE SIZE	
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS					
	OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY					
	MH	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF HIGH PLASTICITY	**SILTS & CLAYS** LIQUID LIMIT GREATER THAN 50				
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS					
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS					
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	**HIGHLY ORGANIC SOILS**				
	OS	OILY SEDIMENTS					

PLASTICITY CHART



KEY TO TEST DATA

CONSOL = CONSOLIDATION
CORR = CORROSIVITY
DS = DIRECT SHEAR
ORG = ORGANIC CONTENT
PERM = PERMEABILITY
PP = POCKET PENETROMETER
RV = R-VALUE
TV = FIELD TORVANE
TXCD = CONSOLIDATED DRAINED TRIAXIAL
TXCU = CONSOLIDATED UNDRAINED TRIAXIAL
UCS = UNCONFINED COMPRESSIVE STRENGTH
UU = UNCONSOLIDATED UNDRAINED TRIAXIAL

KEY TO SAMPLER TYPE

HQ = HQ CORE BARREL SAMPLER
MC = MODIFIED CALIFORNIA SAMPLER
P = DAMES & MOORE PISTON SAMPLER
PS = PITCHER SAMPLER
SPT = STANDARD PENETRATION TEST SAMPLER
ST - SHELBY TUBE SAMPLER
NO RECOVERY

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SOIL CLASSIFICATION CHART AND KEY TO TEST DATA

APPENDIX D

GEOPHYSICAL SURVEY INVESTIGATION REPORT (GEOVISION GEOPHYSICAL SERVICES, INC.)

DRAFT

MTA POTRERO FACILITY

SUSPENSION VELOCITIES

BOREHOLE BH-POT-02

SAN FRANCISCO, CALIFORNIA

March 23, 2018
Report 18113-01 rev 0

MTA POTRERO FACILITY

SUSPENSION VELOCITIES

BOREHOLE BH-POT-02

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INTRODUCTION

GEO*Vision* acquired PS Suspension data in one borehole at the Municipal Transportation Agency's Potrero Facility in San Francisco, California. This work was performed for Arup, Inc. Data analysis and report were reviewed by a **GEO***Vision* licensed California professional engineer or geophysicist.

SCOPE OF WORK

This report presents the results of PS Suspension velocity data collected on March 15th, 2018 as detailed in Table 1. The purpose of these measurements was to supplement stratigraphic information obtained during the drilling investigation.

The OYO Suspension PS Logging System (Suspension System) was used to obtain in-situ horizontal shear (S_H) and compressional (P) wave velocity measurements in one uncased borehole at 1.3 foot (0.4 m) intervals. Measurements followed **GEO***Vision* Procedure for PS Suspension Seismic Velocity Logging, revision 1.5. Acquired data were analyzed and a profile of velocity versus depth was produced for both S_H and P waves.

A detailed reference for the suspension PS velocity measurement techniques used in this study is:

> Guidelines for Determining Design Basis Ground Motions, Report TR-102293, Electric Power Research Institute, Palo Alto, California, November 1993, Sections 7 and 8.

INSTRUMENTATION

Suspension Velocity Instrumentation

Suspension velocity measurements were performed using the suspension PS logging system, manufactured by OYO Corporation, and their subsidiary, RG. This system directly determines the average velocity of a 3.3-foot high segment of the soil column surrounding the boring of interest by measuring the elapsed time between arrivals of a wave propagating upward through the soil column. The receivers that detect the wave, and the source that generates the wave, are moved as a unit in the boring producing relatively constant amplitude signals at all depths.

The suspension system probe consists of a combined reversible polarity solenoid horizontal shear-wave source (S_H) and compressional-wave source (P), joined to two biaxial receivers by a flexible isolation cylinder, as shown in Figure 1. The separation of the two receivers is 3.3 feet, allowing average wave velocity in the region between the receivers to be determined by inversion of the wave travel time between the two receivers. The total length of the probe as used in these surveys is approximately 22 feet, with the center point of the receiver pair 12.5 feet above the bottom end of the probe.

The probe receives control signals from, and sends the digitized receiver signals to, instrumentation on the surface via an armored multi-conductor cable. The cable is wound onto the drum of a winch and is used to support the probe. Cable travel is measured to provide probe depth data using a sheave of known circumference fitted with a digital rotary encoder.

The entire probe is suspended in the boring by the cable, therefore, source motion is not coupled directly to the boring walls; rather, the source motion creates a horizontally propagating impulsive pressure wave in the fluid filling the boring and surrounding the source. This pressure wave is converted to P and S_H-waves in the surrounding soil and rock as it impinges upon the wall of the borehole. These waves propagate through the soil and rock surrounding the borehole, in turn causing a pressure wave to be generated in the fluid surrounding the receivers as the soil waves

pass their location. Separation of the P and S_H-waves at the receivers is performed using the following steps:

1. Orientation of the horizontal receivers is maintained parallel to the axis of the source, maximizing the amplitude of the recorded S_H -wave signals.
2. At each depth, S_H-wave signals are recorded with the source actuated in opposite directions, producing S_H-wave signals of opposite polarity, providing a characteristic S_H-wave signature distinct from the P-wave signal.
3. The 6.3 foot separation of source and receiver 1 permits the P-wave signal to pass and damp significantly before the slower S_H-wave signal arrives at the receiver.
4. In saturated soils, the received P-wave signal is typically of much higher frequency than the received S_H-wave signal, permitting additional separation of the two signals by low pass filtering.
5. Direct arrival of the original pressure pulse in the fluid is not detected at the receivers because the wavelength of the pressure pulse in fluid is significantly greater than the dimension of the fluid annulus surrounding the probe (feet versus inches scale), preventing significant energy transmission through the fluid medium.

In operation, a distinct, repeatable pattern of impulses is generated at each depth as follows:

1. The source is fired in one direction producing dominantly horizontal shear with some vertical compression, and the signals from the horizontal receivers situated parallel to the axis of motion of the source are recorded.
2. The source is fired again in the opposite direction and the horizontal receiver signals are recorded.
3. The source is fired again and the vertical receiver signals are recorded. The repeated source pattern facilitates the picking of the P and S_H-wave arrivals; reversal of the source changes the polarity of the S_H-wave pattern but not the P-wave pattern.

The data from each receiver during each source activation is recorded as a different channel on the recording system. The Suspension PS system has six channels (two simultaneous recording channels), each with a 1024 sample record. The recorded data are displayed as six channels with a common time scale. Data are stored on disk for further processing.

Review of the displayed data on the recorder or computer screen allows the operator to set the gains, filters, delay time, pulse length (energy), and sample rate to optimize the quality of the data before recording. Verification of the calibration of the Suspension PS digital recorder is performed every twelve months using a NIST traceable frequency source and counter, as presented in Appendix B.

MEASUREMENT PROCEDURES

Suspension Velocity

One borehole was logged uncased and filled with drilling fluid. Measurements followed the **GEO***Vision* Procedure for P-S Suspension Seismic Velocity Logging, revision 1.5. Prior to the logging run, the probe was positioned with the top of the probe even with a stationary reference point. The electronic depth counter was set to the distance between the mid-point of the receiver and the top of the probe, minus the height of the stationary reference point, if any, verified with a tape measure, and recorded on the field logs. The probe was lowered to the bottom of the borehole, stopping at 1.3 foot (400 mm) intervals to collect data, as summarized in Table 2.

At each measurement depth the measurement sequence of two opposite horizontal records and one vertical record was performed, and the gains were adjusted as required. The data from each depth were viewed on the computer display, checked, and saved before moving to the next depth.

Upon completion of the measurements, the probe zero depth indication at the depth reference point was verified prior to removal from the boring.

DATA ANALYSIS

Suspension Velocity

Using the proprietary OYO program PSLOG.EXE version 1.0, the recorded digital waveforms were analyzed to locate the most prominent first minima, first maxima, or first break on the vertical axis records, indicating the arrival of P-wave energy. The difference in travel time between receiver 1 and receiver 2 (R1-R2) arrivals was used to calculate the P-wave velocity for that 1.0 meter segment of the soil column. When observable, P-wave arrivals on the horizontal axis records were used to verify the velocities determined from the vertical axis data. The time picks were then transferred into a Microsoft Excel® template to complete the velocity calculations based on the arrival time picks made in PSLOG.

The P-wave velocity over the 6.3-foot interval from source to receiver 1 (S-R1) was also picked using PSLOG, and calculated and plotted in Microsoft Excel®, for quality assurance of the velocity derived from the travel time between receivers. In this analysis, the depth values as recorded were increased by 4.8 feet to correspond to the mid-point of the 6.3-foot S-R1 interval. Travel times were obtained by picking the first break of the P-wave signal at receiver 1 and subtracting 0.35 milliseconds, the calculated and experimentally verified delay from source trigger pulse (beginning of record) to source impact. This delay corresponds to the duration of acceleration of the solenoid before impact.

As with the P-wave records, the recorded digital waveforms were analyzed to locate clear S_H-wave pulses, as indicated by the presence of opposite polarity pulses on each pair of horizontal records. Ideally, the S_H-wave signals from the 'normal' and 'reverse' source pulses are very nearly inverted images of each other. Digital Fast Fourier Transform – Inverse Fast Fourier Transform (FFT – IFFT) lowpass filtering was used to remove the higher frequency P-wave signal from the S_H-wave signal. Different filter cutoffs were used to separate P- and S_H-waves at different depths, ranging from 600 Hz in the slowest zones to 4000 Hz in the regions of highest velocity. At each depth, the filter frequency was selected to be at least twice the fundamental frequency of the S_H-wave signal being filtered.

Generally, the first maxima were picked for the 'normal' signals and the first minima for the 'reverse' signals, although other points on the waveform were used if the first pulse was distorted. The absolute arrival time of the 'normal' and 'reverse' signals may vary by +/- 0.2 milliseconds, due to differences in the actuation time of the solenoid source caused by constant mechanical bias in the source or by boring inclination. This variation does not affect the R1-R2 velocity determinations, as the differential time is measured between arrivals of waves created by the same source actuation. The final velocity value is the average of the values obtained from the 'normal' and 'reverse' source actuations.

As with the P-wave data, S_H-wave velocity calculated from the travel time over the 6.3-foot interval from source to receiver 1 was calculated and plotted for verification of the velocity derived from the travel time between receivers. In this analysis, the depth values were increased by 4.8 feet to correspond to the mid-point of the 6.3-foot S-R1 interval. Travel times were obtained by picking the first break of the S_H-wave signal at the near receiver and subtracting 0.35 milliseconds, the calculated and experimentally verified delay from the beginning of the record at the source trigger pulse to source impact.

Poisson's Ratio, **ν**, was calculated in the Microsoft Excel® template using the following formula:

$$\nu = \frac{\left(\frac{V_s}{V_p}\right)^2 - 0.5}{\left(\frac{V_s}{V_p}\right)^2 - 1.0}$$

Data and analyses were reviewed by a **GEO***Vision* California professional geophysicist or engineer as a component of the in-house data validation program.

Figure 2 shows an example of R1 - R2 measurements on a sample filtered suspension record. In Figure 2, the time difference over the 3.3 foot interval of 1.88 milliseconds for the horizontal signals is equivalent to an S_H-wave velocity of 1745 feet/second. Whenever possible, time differences were determined from several phase points on the S_H-waveform records to verify the data obtained from the first arrival of the S_H-wave pulse. Figure 3 displays the same record before filtering of the S_H-waveform record with a 1400 Hz FFT - IFFT digital lowpass filter, illustrating the presence of higher frequency P-wave energy at the beginning of the record, and distortion of the lower frequency S_H-wave by residual P-wave signal.

RESULTS

Suspension Velocity

Suspension R1-R2 P- and S_H-wave velocities for borehole BH-POT-02 are presented in Figure 4. The suspension velocity data presented in this figure are also presented in Table 3. The Microsoft Excel® analysis file is also provided in the data directory that accompanies this report.

P- and S_H-wave velocity data from R1-R2 analysis and quality assurance analysis of S-R1 data are plotted together in Figure A-1 to aid in visual comparison. It should be noted that R1-R2 data are an average velocity over a 3.3-foot segment of the soil column; S-R1 data are an average over 6.3 feet, creating a significant smoothing relative to the R1-R2 plots. The S-R1 velocity data displayed in these figures are also presented in Table A-1 and are included in the Microsoft Excel® analysis file. The Microsoft Excel® analysis file also includes Poisson's Ratio calculations, tabulated data and plots.

SUMMARY

Discussion of Suspension Velocity Results

Suspension PS velocity data are ideally collected in an uncased, fluid filled boring drilled with rotary mud (rotary wash) methods, as was the case for this project.

Suspension PS velocity data quality is judged based upon 5 criteria.

	Criteria	BH-POT-02
1	Consistent data between receiver to receiver (R1 – R2) and source to receiver (S – R1) data.	Yes.
2	Consistency between data from adjacent depth intervals.	Yes
3	Consistent relationship between P-wave and SH -wave (excluding transition to saturated soils)	Yes Saturation occurs about 45 ft and top of rock is about 66 ft.
4	Clarity of P-wave and SH-wave onset, as well as damping of later oscillations.	This is very good data.
5	Consistency of profile between adjacent borings, if available.	Not Applicable

Quality Assurance

These borehole geophysical measurements were performed using industry-standard or better methods for measurements and analyses. All work was performed under **GEO***Vision* quality assurance procedures, which include:

- Use of NIST-traceable calibrations, where applicable, for field and laboratory instrumentation
- Use of standard field data logs
- Independent review of calculations and results by a registered professional engineer, geologist, or geophysicist

Suspension Velocity Data Reliability

P- and S_H-wave velocity measurement using the Suspension Method gives average velocities over a 3.3-foot interval of depth. This high resolution results in the scatter of values shown in the graphs. Individual measurements are very reliable with estimated precision of +/- 5%. Depth indications are very reliable with estimated precision of +/- 0.2 feet. Standardized field procedures and quality assurance checks contribute to the reliability of these data.

CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision and review of a **GEO***Vision* California professional geophysicist or engineer.

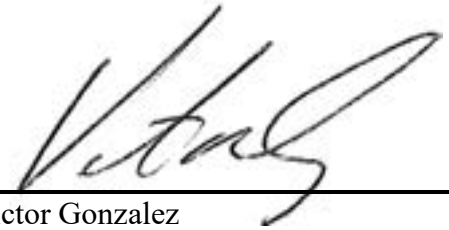
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Reviewed and approved by





3/23/2018

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* This geophysical investigation was conducted under the supervision of a California Professional Geophysicist or Engineer using industry standard methods and equipment. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing, interpretation and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

  A professional geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

Table 1. Boring locations and logging dates

BORING DESIGNATION	DATES LOGGED	LOCATION[1]		ELEVATION (FEET)
		LATITUDE	LONGITUDE	
BH-POT-02	3/15/2018			

[1] Coordinates not available at time of report

Table 2. Logging dates and depth ranges

BORING NUMBER	TOOL AND RUN NUMBER	DEPTH RANGE (FEET)	CASED OR UNCASED	SAMPLE INTERVAL (FEET)	DATE LOGGED
BH-POT-02	SUSPENSION DOWN01	3.94 – 107.61	UNCASED	1.31	3/15/2018

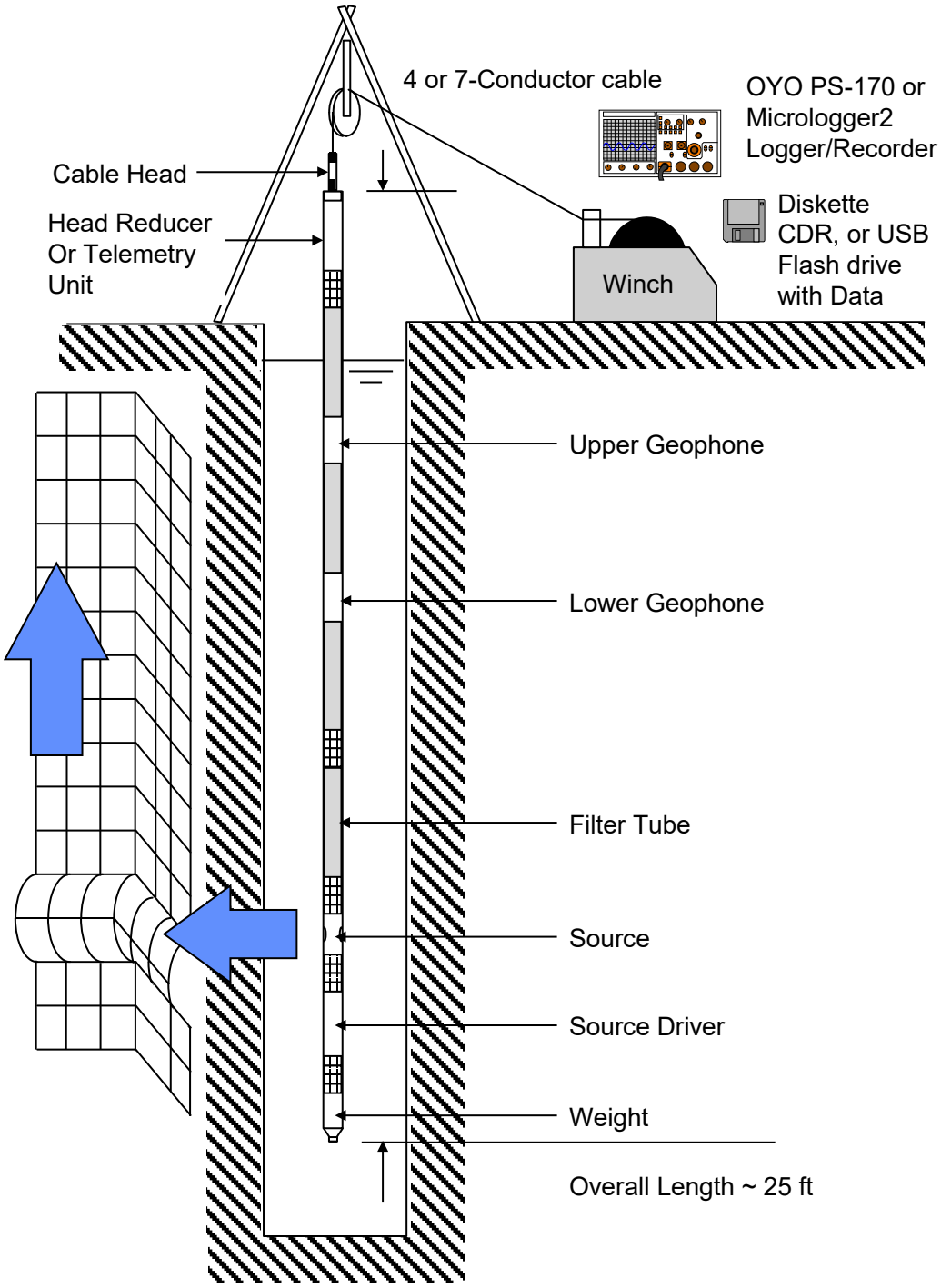


Figure 1: Concept illustration of P-S logging system

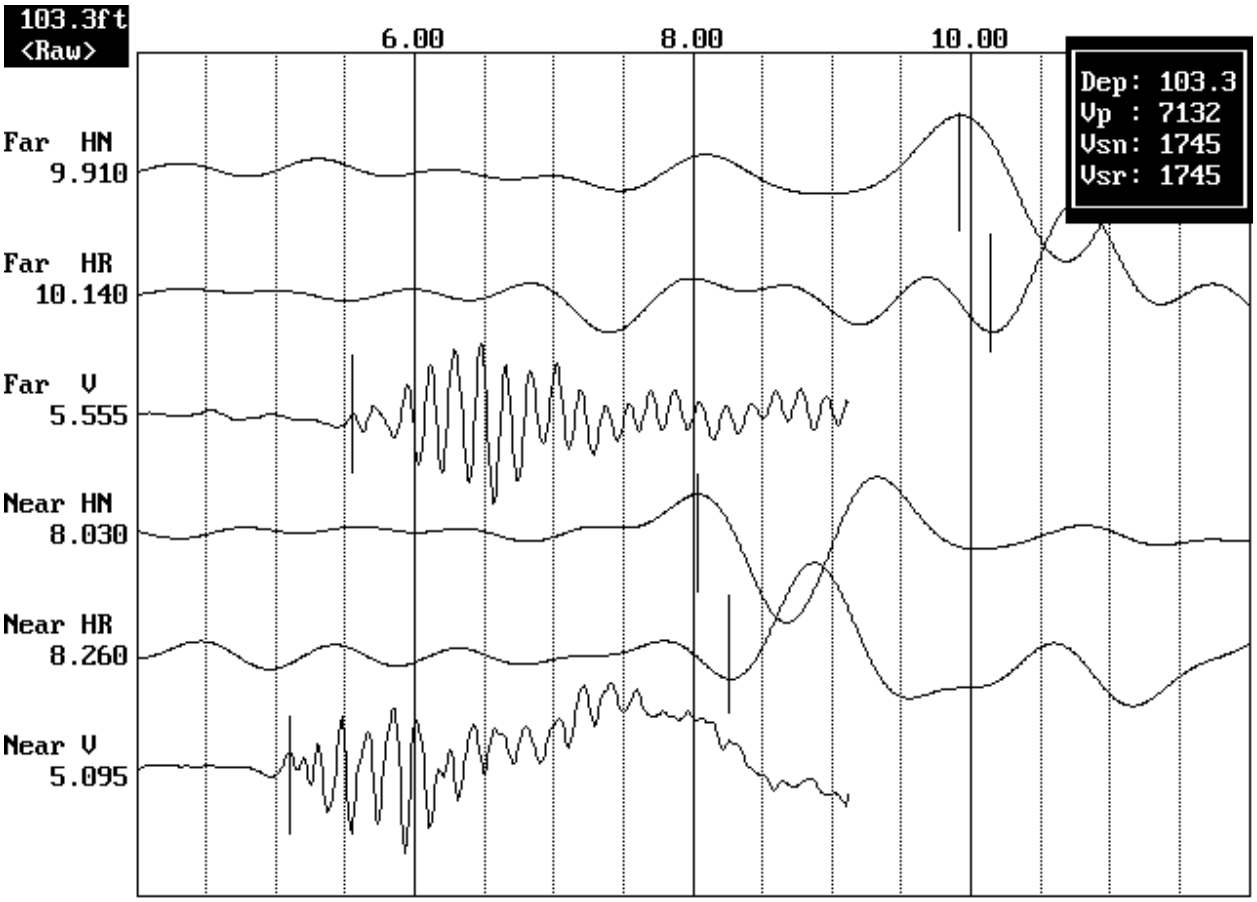


Figure 2: Example of filtered (1400 Hz lowpass) suspension record

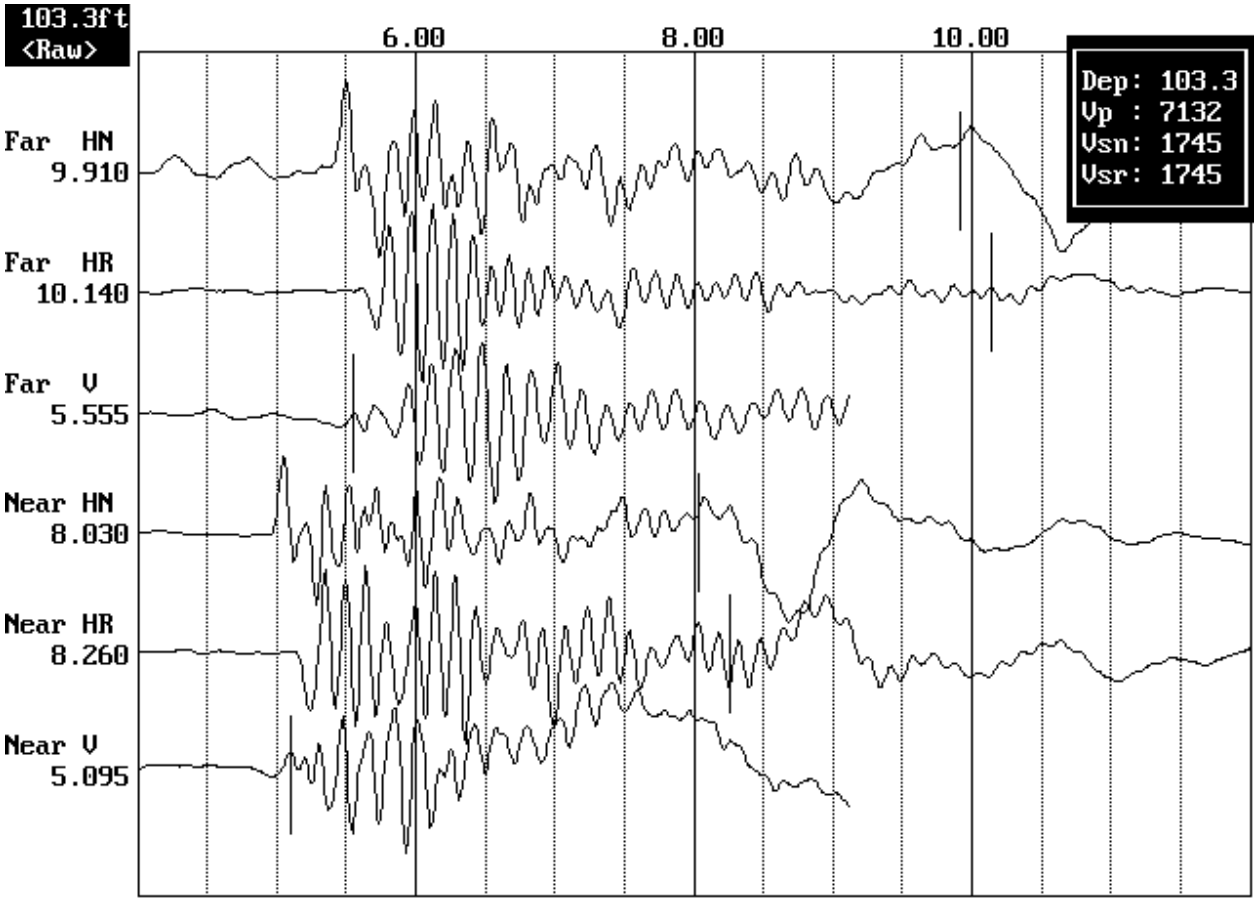


Figure 3. Example of unfiltered suspension record

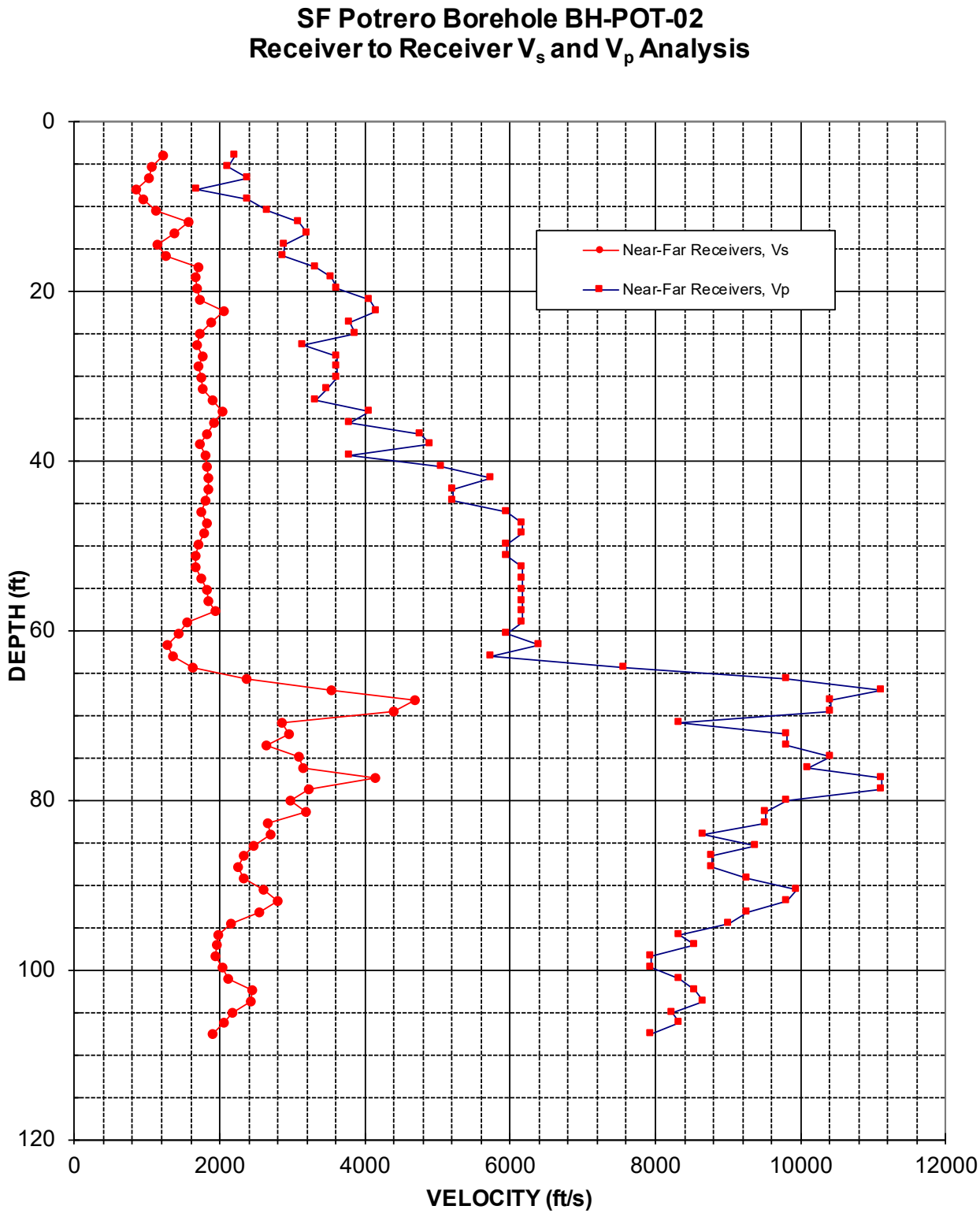


Figure 4: Boring BH-POT-02, Suspension R1-R2 P- and S_H-wave velocities

Table 3. Boring BH-POT-02, Suspension R1-R2 depths and P- and S_H-wave velocities

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio Based on Receiver-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units				Metric Units			
Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio	Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio
	V_s	V_p			V_s	V_p	
(ft)	(ft/s)	(ft/s)		(m)	(m/s)	(m/s)	
3.9	1210	2220	0.29	1.2	370	680	0.29
5.3	1070	2110	0.33	1.6	330	640	0.33
6.6	1030	2380	0.39	2.0	310	730	0.39
7.9	850	1680	0.33	2.4	260	510	0.33
9.2	940	2380	0.41	2.8	290	730	0.41
10.5	1130	2670	0.39	3.2	340	810	0.39
11.8	1570	3090	0.33	3.6	480	940	0.33
13.1	1370	3210	0.39	4.0	420	980	0.39
14.4	1140	2900	0.41	4.4	350	880	0.41
15.8	1260	2870	0.38	4.8	380	880	0.38
17.1	1710	3330	0.32	5.2	520	1020	0.32
18.4	1670	3550	0.36	5.6	510	1080	0.36
19.7	1690	3620	0.36	6.0	520	1100	0.36
21.0	1720	4070	0.39	6.4	520	1240	0.39
22.3	2060	4170	0.34	6.8	630	1270	0.34
23.6	1870	3790	0.34	7.2	570	1150	0.34
24.9	1720	3880	0.38	7.6	520	1180	0.38
26.3	1680	3140	0.30	8.0	510	960	0.30
27.6	1770	3620	0.34	8.4	540	1100	0.34
28.9	1700	3620	0.36	8.8	520	1100	0.36
30.2	1740	3620	0.35	9.2	530	1100	0.35
31.5	1770	3470	0.32	9.6	540	1060	0.32
32.8	1900	3330	0.26	10.0	580	1020	0.26
34.1	2040	4070	0.33	10.4	620	1240	0.33
35.4	1920	3790	0.33	10.8	580	1150	0.33
36.8	1830	4760	0.41	11.2	560	1450	0.41
38.1	1720	4900	0.43	11.6	520	1490	0.43
39.4	1810	3790	0.35	12.0	550	1150	0.35
40.7	1820	5050	0.43	12.4	560	1540	0.43
42.0	1850	5750	0.44	12.8	560	1750	0.44
43.3	1840	5210	0.43	13.2	560	1590	0.43
44.6	1800	5210	0.43	13.6	550	1590	0.43
45.9	1740	5950	0.45	14.0	530	1810	0.45
47.2	1830	6170	0.45	14.4	560	1880	0.45
48.6	1780	6170	0.45	14.8	540	1880	0.45
49.9	1710	5950	0.46	15.2	520	1810	0.46
51.2	1680	5950	0.46	15.6	510	1810	0.46

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Receiver-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units				Metric Units			
Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio	Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio
	V_s	V_p			V_s	V_p	
(ft)	(ft/s)	(ft/s)		(m)	(m/s)	(m/s)	
52.5	1680	6170	0.46	16.0	510	1880	0.46
53.8	1750	6170	0.46	16.4	530	1880	0.46
55.1	1830	6170	0.45	16.8	560	1880	0.45
56.4	1850	6170	0.45	17.2	560	1880	0.45
57.7	1950	6170	0.44	17.6	590	1880	0.44
59.1	1540	6170	0.47	18.0	470	1880	0.47
60.4	1440	5950	0.47	18.4	440	1810	0.47
61.7	1270	6410	0.48	18.8	390	1950	0.48
63.0	1350	5750	0.47	19.2	410	1750	0.47
64.3	1630	7580	0.48	19.6	500	2310	0.48
65.6	2360	9800	0.47	20.0	720	2990	0.47
66.9	3550	11110	0.44	20.4	1080	3390	0.44
68.2	4690	10420	0.37	20.8	1430	3180	0.37
69.6	4390	10420	0.39	21.2	1340	3180	0.39
70.9	2850	8330	0.43	21.6	870	2540	0.43
72.2	2950	9800	0.45	22.0	900	2990	0.45
73.5	2650	9800	0.46	22.4	810	2990	0.46
74.8	3090	10420	0.45	22.8	940	3180	0.45
76.1	3140	10100	0.45	23.2	960	3080	0.45
77.4	4140	11110	0.42	23.6	1260	3390	0.42
78.7	3220	11110	0.45	24.0	980	3390	0.45
80.1	2980	9800	0.45	24.4	910	2990	0.45
81.4	3190	9520	0.44	24.8	970	2900	0.44
82.7	2670	9520	0.46	25.2	810	2900	0.46
84.0	2700	8660	0.45	25.6	820	2640	0.45
85.3	2470	9390	0.46	26.0	750	2860	0.46
86.6	2320	8770	0.46	26.4	710	2670	0.46
87.9	2250	8770	0.46	26.8	690	2670	0.46
89.2	2330	9260	0.47	27.2	710	2820	0.47
90.6	2600	9950	0.46	27.6	790	3030	0.46
91.9	2800	9800	0.46	28.0	850	2990	0.46
93.2	2540	9260	0.46	28.4	780	2820	0.46
94.5	2160	9010	0.47	28.8	660	2750	0.47
95.8	1980	8330	0.47	29.2	600	2540	0.47
97.1	1970	8550	0.47	29.6	600	2610	0.47
98.4	1950	7940	0.47	30.0	590	2420	0.47
99.7	2040	7940	0.46	30.4	620	2420	0.46
101.1	2120	8330	0.47	30.8	650	2540	0.47
102.4	2450	8550	0.46	31.2	750	2610	0.46
103.7	2430	8660	0.46	31.6	740	2640	0.46

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Receiver-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units			
Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio
	V_s	V_p	
(ft)	(ft/s)	(ft/s)	
105.0	2160	8230	0.46
106.3	2060	8330	0.47
107.6	1900	7940	0.47

Metric Units			
Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio
	V_s	V_p	
(m)	(m/s)	(m/s)	
32.0	660	2510	0.46
32.4	630	2540	0.47
32.8	580	2420	0.47

APPENDIX A

SUSPENSION VELOCITY MEASUREMENT QUALITY ASSURANCE SUSPENSION SOURCE TO RECEIVER ANALYSIS RESULTS

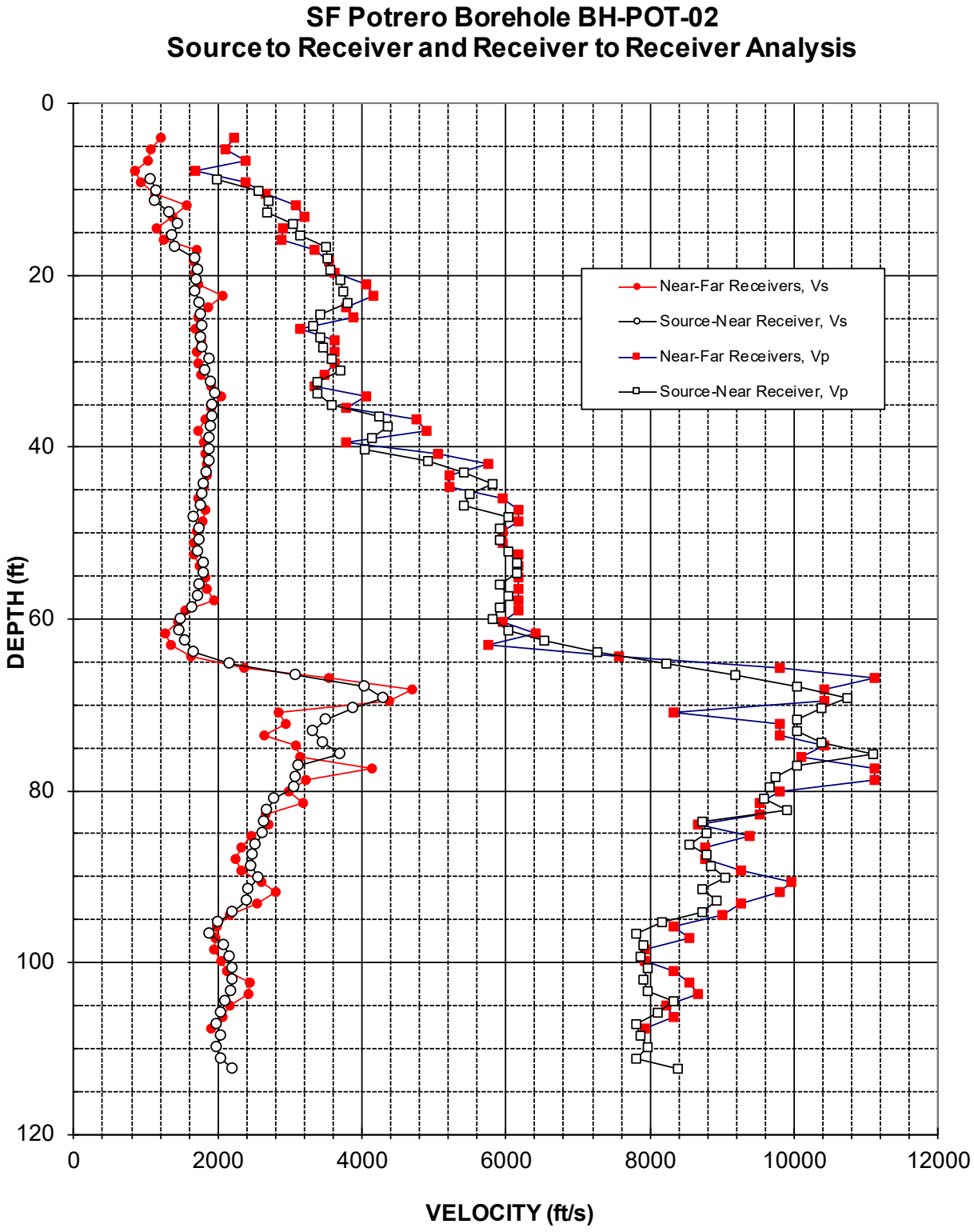


Figure A-1: Boring BH-POT-02, Suspension S-R1 P- and S_H-wave velocities

Table A-1. Boring BH-POT-02, S - R1 quality assurance analysis P- and S_H-wave data

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Source-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units				Metric Units			
Depth at Midpoint Between Source and Near Receiver	Velocity V_s	Velocity V_p	Poisson's Ratio	Depth at Midpoint Between Source and Near Receiver	Velocity V_s	Velocity V_p	Poisson's Ratio
(ft)	(ft/s)	(ft/s)		(m)	(m/s)	(m/s)	
8.8	1070	1980	0.30	2.7	330	600	0.30
10.1	1160	2560	0.37	3.1	350	780	0.37
11.4	1140	2710	0.39	3.5	350	820	0.39
12.7	1330	2690	0.34	3.9	400	820	0.34
14.0	1450	3040	0.35	4.3	440	930	0.35
15.3	1370	3130	0.38	4.7	420	960	0.38
16.6	1400	3500	0.40	5.1	430	1070	0.40
18.0	1680	3520	0.35	5.5	510	1070	0.35
19.3	1720	3560	0.35	5.9	530	1080	0.35
20.6	1700	3700	0.37	6.3	520	1130	0.37
21.9	1680	3750	0.37	6.7	510	1140	0.37
23.2	1750	3790	0.36	7.1	530	1160	0.36
24.5	1770	3420	0.32	7.5	540	1040	0.32
25.8	1780	3310	0.30	7.9	540	1010	0.30
27.1	1760	3420	0.32	8.3	540	1040	0.32
28.5	1780	3460	0.32	8.7	540	1050	0.32
29.8	1900	3580	0.30	9.1	580	1090	0.30
31.1	1830	3700	0.34	9.5	560	1130	0.34
32.4	1910	3390	0.27	9.9	580	1030	0.27
33.7	1960	3390	0.25	10.3	600	1030	0.25
35.0	1940	3580	0.29	10.7	590	1090	0.29
36.3	1940	4250	0.37	11.1	590	1290	0.37
37.6	1910	4370	0.38	11.5	580	1330	0.38
39.0	1890	4140	0.37	11.9	580	1260	0.37
40.3	1890	4030	0.36	12.3	580	1230	0.36
41.6	1880	4910	0.41	12.7	570	1500	0.41
42.9	1860	5410	0.43	13.1	570	1650	0.43
44.2	1800	5810	0.45	13.5	550	1770	0.45
45.5	1790	5500	0.44	13.9	550	1680	0.44
46.8	1760	5410	0.44	14.3	540	1650	0.44
48.1	1670	6030	0.46	14.7	510	1840	0.46
49.5	1750	5920	0.45	15.1	530	1800	0.45
50.8	1750	5920	0.45	15.5	530	1800	0.45
52.1	1720	6030	0.46	15.9	530	1840	0.46
53.4	1800	6150	0.45	16.3	550	1870	0.45
54.7	1810	6150	0.45	16.7	550	1870	0.45
56.0	1750	5920	0.45	17.1	530	1800	0.45
57.3	1720	6030	0.46	17.5	530	1840	0.46
58.6	1640	5920	0.46	17.9	500	1800	0.46

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Source-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units			
Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio
	V_s	V_p	
(ft)	(ft/s)	(ft/s)	
60.0	1490	5810	0.46
61.3	1460	6030	0.47
62.6	1540	6530	0.47
63.9	1670	7280	0.47
65.2	2180	8220	0.46
66.5	3090	9170	0.44
67.8	4030	10050	0.40
69.1	4310	10730	0.40
70.5	3880	10380	0.42
71.8	3500	10050	0.43
73.1	3310	10050	0.44
74.4	3460	10380	0.44
75.7	3700	11110	0.44
77.0	3120	10050	0.45
78.3	3090	9740	0.44
79.6	3060	9660	0.44
81.0	2790	9590	0.45
82.3	2690	9890	0.46
83.6	2650	8730	0.45
84.9	2630	8790	0.45
86.2	2520	8550	0.45
87.5	2480	8790	0.46
88.8	2460	8850	0.46
90.1	2560	9040	0.46
91.4	2420	8730	0.46
92.8	2400	8920	0.46
94.1	2200	8730	0.47
95.4	2020	8170	0.47
96.7	1900	7810	0.47
98.0	2080	7910	0.46
99.3	2160	7860	0.46
100.6	2210	7960	0.46
101.9	2210	7910	0.46
103.3	2180	7960	0.46
104.6	2110	8330	0.47
105.9	2060	8120	0.47
107.2	1990	7810	0.47
108.5	2060	7860	0.46
109.8	1990	7960	0.47
111.1	2060	7810	0.46

Metric Units			
Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio
	V_s	V_p	
(m)	(m/s)	(m/s)	
18.3	450	1770	0.46
18.7	450	1840	0.47
19.1	470	1990	0.47
19.5	510	2220	0.47
19.9	660	2510	0.46
20.3	940	2800	0.44
20.7	1230	3060	0.40
21.1	1310	3270	0.40
21.5	1180	3160	0.42
21.9	1070	3060	0.43
22.3	1010	3060	0.44
22.7	1050	3160	0.44
23.1	1130	3380	0.44
23.5	950	3060	0.45
23.9	940	2970	0.44
24.3	930	2950	0.44
24.7	850	2920	0.45
25.1	820	3010	0.46
25.5	810	2660	0.45
25.9	800	2680	0.45
26.3	770	2610	0.45
26.7	760	2680	0.46
27.1	750	2700	0.46
27.5	780	2760	0.46
27.9	740	2660	0.46
28.3	730	2720	0.46
28.7	670	2660	0.47
29.1	610	2490	0.47
29.5	580	2380	0.47
29.9	630	2410	0.46
30.3	660	2400	0.46
30.7	670	2430	0.46
31.1	670	2410	0.46
31.5	670	2430	0.46
31.9	640	2540	0.47
32.3	630	2470	0.47
32.7	610	2380	0.47
33.1	630	2400	0.46
33.5	610	2430	0.47
33.9	630	2380	0.46

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Source-to-Receiver Travel Time Data - Borehole BH-POT-02

American Units			
Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio
	V_s	V_p	
(ft)	(ft/s)	(ft/s)	
112.4	2200	8380	0.46

Metric Units			
Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio
	V_s	V_p	
(m)	(m/s)	(m/s)	
34.3	670	2560	0.46

APPENDIX B

BORING GEOPHYSICAL LOGGING SYSTEMS - NIST TRACEABLE CALIBRATION RECORDS

MICRO PRECISION CALIBRATION, INC
2165 N. Glassell St.,
Orange, CA 92865
714-901-5659

Certificate of Calibration

AC-1969.03

Date: Feb 5, 2018 **Cert No. 512200813241307**

Customer:

GEOVISION

1124 OLYMPIC DRIVE
CORONA CA 92881

		Work Order #:	LA-90038210
		Purchase Order #:	OH-180202-01
MPC Control #:	BG9697	Serial Number:	19029
Asset ID:	19029	Department:	N/A
Gage Type:	LOGGER	Performed By:	TYLER MCKEEN
Manufacturer:	OYO	Received Condition:	IN TOLERANCE
Model Number:	3331-A	Returned Condition:	IN TOLERANCE
Size:	N/A	Cal. Date:	February 02, 2018
Temp/RH:	72.0°F / 54.0%	Cal. Interval:	12 MONTHS
Location:	Calibration performed at MPC facility	Cal. Due Date:	February 02, 2019

Calibration Notes:

See Attached Data Sheet (1 Page)

Calibrated IAW customer supplied data form Rev 2.1
Frequency measurement uncertainty = 0.0005 Hz
Unit calibrated with Panasonic Toughbook CF-29 Ser#: 4FKSA41798
Calibrated to 4:1 accuracy ratio.

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
BD7715	UNIVERSAL COUNTER	53131A	3416A05377	HEWLETT PACKARD	Nov 30, 2018	512200813230072
LAS0018	ARB / FUNC GENERATOR	33250A	US40001522	AGILENT TECHNOLOGIES	Dec 31, 2018	512200812632023
DB8748	GPS TIME AND FREQUENCY RECEIVER	58503A	3625A01225	HEWLETT PACKARD	Jun 16, 2019	512200812919221

Procedures Used in this Event

Procedure Name	Description
GEOVISION SEISMIC	Seismic Logger/Recorder Calibration Procedure, Rev. 2.1

Calibrating Technician: TYLER MCKEEN

QC Approval: JIM WILLIAMS

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA's Publication and NIST Technical Note 1297, 1994 Edition. Services rendered comply with ISO/IEC 17025:2005, ANSI/NCSL Z540-1-1994, ANSI/NCSL Z540.3-2006, MPC Quality Manual, MPC CSD and with customer purchase order instructions.

Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. The information on this report, pertains only to the instrument identified.

All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. This report may not be reproduced in part or in a whole without the prior written approval of the issuing MPC lab.

GEOVision
geophysical services

SUSPENSION PS SEISMIC LOGGER/RECORDER CALIBRATION DATA FORM

INSTRUMENT DATA

System mfg.:	Oyo	Model no.:	3331
Serial no.:	19029	Calibration date:	2/2/2018
By:	MicroPrecision	Due date:	2/2/2019
Counter mfg.:	Hewlett-Packard	Model no.:	53131A
Serial no.:	3416A05377	Calibration date:	11/10/2017
By:	Microprecision	Due date:	11/30/2018
Signal generator mfg.:	Agilent	Model no.:	33250A
Serial no.:	US40001522	Calibration date:	12/5/2017
By:	Microprecision	Due date:	12/31/2018
Laptop controller mfg.:	Panasonic	Model no.:	Toughbook CF-29
Serial no.:	4FKSA41798	Calibration date:	N/A

SYSTEM SETTINGS:

Gain:	10
Filter	20KHz
Range:	See sample period in table below
Delay:	0
Stack (1 std)	1
System date = correct date and time	2/2/2018 10:00am

PROCEDURE:

Set sine wave frequency to target frequency with amplitude of approximately 0.25 volt peak
Note actual frequency on data form.
Set sample period and record data file to disk. Note file name on data form.
Pick duration of 9 cycles using PSLOG.EXE program, note duration on data form, and save as .sps file. Calculate average frequency for each channel pair and note on data form.

Average frequency must be within +/- 1% of actual frequency at all data points.

Maximum error ((AVG-ACT)/ACT*100)% As found 0.60% As left 0.60%

Target Frequency (Hz)	Actual Frequency (Hz)	Sample Period (microS)	File Name	Time for 9 cycles Hn (msec)	Average Frequency Hn (Hz)	Time for 9 cycles Hr (msec)	Average Frequency Hr (Hz)	Time for 9 cycles V (msec)	Average Frequency V (Hz)
50.00	50.00	200	2	179.6	50.11	179.8	50.06	179.4	50.17
100.0	100.0	100	3	89.90	100.1	89.80	100.2	89.50	100.6
200.0	200.0	50	4	44.85	200.7	44.95	200.2	45.00	200.0
500.0	500.0	20	5	18.00	500.0	17.98	500.6	18.02	499.4
1000	1000	10	6	8.980	1002	9.000	1000.0	8.970	1003.3
2000	2000	5	7	4.500	2000	4.500	2000	4.495	2002

Calibrated by: Tyler McKeen 2/2/2018 Signature
Name Date

Witnessed by: Emily Feldman 2/2/2018 Signature
Name Date

Suspension PS Seismic Recorder/Logger Calibration Data Form Rev 2.1 February 7, 2012

REPORT

SURFACE WAVE MEASUREMENTS

MTA POTRERO FACILITY
SAN FRANCISCO, CALIFORNIA

GEO*Vision* Project No. 18113

Prepared for

Arup, Inc.
560 Mission Street, Suite 700
San Francisco, CA 94105
(415) 957-9445

Prepared by

GEO*Vision* Geophysical Services, Inc.
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Report 18113-02

May 2, 2018

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1 INTRODUCTION

In-situ seismic measurements using active and passive surface wave techniques were performed at the proposed locations of the MTA Potrero Facility, San Francisco, California from March 13th to March 16th, 2018. The primary purpose of the surface geophysical investigation was to map depth to bedrock beneath four seismic lines designated as Lines 1 through 4. The secondary purpose of the investigation was to provide a shear (S) wave velocity of the bedrock and overlying sediments and estimate the average S-wave velocity of the upper 30 m (V_{S30}). The active surface wave technique utilized during this investigation consisted of the multi-channel analysis of surface waves (MASW) method. The passive surface wave techniques consisted of the horizontal over vertical spectral ratio (HVSR), array microtremor, and refraction microtremor methods. Due to a thick surficial layer of asphalt and concrete, it was determined in the field that seismic refraction would not yield reliable results at the site. The geology in the vicinity of the seismic lines was expected to consist of sediments overlaying Franciscan Complex bedrock. The locations of the active and passive surface wave arrays are shown on Figure 1 and in Table 1.

V_{S30} is used in the NEHRP provisions and the Uniform Building Code (UBC) to separate sites into classes for earthquake engineering design (BSSC, 1994). The average shear wave velocity of the upper 100 ft (V_{S100ft}) is used in the International Building Code (IBC) for site classification. These site classes are as follows:

Class A – hard rock – $V_{S30} > 1500$ m/s (UBC) or $V_{S100ft} > 5{,}000$ ft/s (IBC)
Class B – rock – $760 < V_{S30} \leq 1500$ m/s (UBC) or $2{,}500 < V_{S100ft} \leq 5{,}000$ ft/s (IBC)
Class C – very dense soil and soft rock – $360 < V_{S30} \leq 760$ m/s (UBC)
or $1{,}200 < V_{S100ft} \leq 2{,}500$ ft/s (IBC)
Class D – stiff soil – $180 < V_{S30} \leq 360$ m/s (UBC) or $600 < V_{S100ft} \leq 1{,}200$ ft/s (IBC)
Class E – soft soil – $V_{S30} < 180$ m/s (UBC) or $V_{S100ft} < 600$ ft/s (IBC)
Class F – soils requiring site-specific evaluation

At many sites, active surface wave techniques (MASW) with the utilization of portable energy sources, such as hammers and weight drops, are sufficient to obtain a 30 m (100 ft) S-wave velocity sounding. At sites with high ambient noise levels and/or very soft soils, these energy sources may not be sufficient to image to 30 m and a larger energy source, such as a bulldozer, is necessary. Alternatively, passive surface wave techniques, such as the array microtremor technique or the refraction microtremor method of Louie (2001), can be used to extend the depth of investigation at sites that have adequate ambient noise conditions. It should be noted that two-dimensional passive surface wave arrays (e.g. triangular, circular, or L-shaped arrays) will perform better than linear arrays. However due to the expected high degree of lateral velocity variability and site constraints, two-dimensional passive surface wave arrays were not feasible.

This report contains the results of the active and passive surface wave measurements conducted at the site. An overview of the surface wave methods is given in Section 2. Field and data reduction procedures are discussed in Sections 3 and 4, respectively. Interpretation and results are presented in Section 5 and Section 6 presents our conclusions. References and our professional certification are presented in Sections 7 and 8, respectively.

2 OVERVIEW OF THE SURFACE WAVE METHODS

A discussion of active and passive surface wave methods is provided in the technical note included as Appendix A. Active surface wave techniques include the spectral analysis of surface waves (SASW) and multi-channel array surface wave (MASW) methods. Passive surface wave techniques include the array and refraction microtremor methods.

The basis of surface wave methods is the dispersive characteristic of Rayleigh and Love waves when propagating in a layered medium. The Rayleigh wave phase velocity, V_R, depends primarily on the material properties (V_S, mass density and Poisson's ratio or compression wave velocity) over a depth of approximately one wavelength. The Love wave phase velocity, V_L, depends primarily on V_S and mass density. Rayleigh and Love wave propagation are also affected by damping or seismic quality factor (Q).

Waves of different wavelengths, λ, (or frequencies, f) sample different depths. As a result of the variance in the shear stiffness of the layers, waves with different wavelengths travel at different phase velocities; hence, dispersion. A surface wave dispersion curve (dispersion curve) is the variation of V_R or V_L with λ or f.

The SASW and MASW methods are in-situ seismic method for determining shear wave velocity (V_S) profiles (Stokoe et al., 1994; Stokoe et al., 1989; Park et al., 1999a and 1999b, Foti, 2000). Surface wave techniques are non-invasive and non-destructive, with all testing performed on the ground surface at strain levels in the soil in the elastic range (< 0.001%). SASW testing consists of collecting surface wave phase data in the field, generating the dispersion curve, and then using iterative forward or inverse modeling to calculate the shear stiffness profile. MASW testing consists of collecting multi-channel seismic data in the field, applying a wavefield transform to obtain the dispersion curve, and data modeling.

A detailed description of the SASW field procedure is given in Joh, 1996. A vertical dynamic load is used to generate horizontally-propagating Rayleigh waves and a horizontal force is used to generate Love waves. The ground motions are monitored by two, or more, vertical (Rayleigh wave) or horizontal (Love wave) receivers and recorded by the data acquisition system capable of performing both time and frequency-domain calculations. Theoretical, as well as practical considerations, such as attenuation, necessitate the use of several receiver spacings to generate the dispersion curve over the wavelength range required to evaluate the stiffness profile. To minimize phase shifts due to differences in receiver coupling and subsurface variability, the source location is reversed. To develop a V_S model to a 30 meter depth using Rayleigh wave methods, energy sources typically include: small hammers (rock hammer or 3 lb hammer) for short receiver intervals; 10 to 20 lb sledgehammers for intermediate separations, and accelerated weight drops (AWD) or an electromechanical shaker for larger spacings. More energetic sources, such as bulldozers or seismic vibrators (Vibroseis^{TM}), can be used to conduct characterize velocity structure to depths of 100 m or more. Energy sources for shallow imaging using Love waves include a hammer and horizontal traction plank, portable hammer impact aluminum source, and inclined or horizontal accelerated weight drop systems. Energy sources for deeper imaging using Love waves include horizontal seismic vibrators. Generally, high frequency (short wavelength) surface waves are recorded across receiver pairs spaced at short intervals, whereas low frequency (long wavelength) surface waves require greater spacing between

receivers. Dispersion data averaged across greater distances are often smoother because effects of localized heterogeneities are averaged.

After the time-domain motions from the two receivers are converted to frequency-domain records using the Fast Fourier Transform, the cross power spectrum and coherence are calculated. The phase of the cross power spectrum, ϕ_w (f), represents the phase differences between the two receivers as the wave train propagates past them. It ranges from $-\pi$ to π in a wrapped form and must be unwrapped through an interactive process called masking. Phase jumps are specified, near-field data (wavelengths longer than two times the distance from the source to first receiver) and low-coherence data are removed. The experimental dispersion curve is calculated from the unwrapped phase angle and the distance between receivers by:

$$V_{R/L} = f * d_2/(\Delta\phi/360°)$$

where V_R = Rayleigh wave phase velocity
V_L = Love wave phase velocity
f = frequency
d_2 = distance between receivers
$\Delta\phi$ = the phase difference in degrees

A detailed description of the MASW method is given by Park, 1999a and 1999b. Ground motions are recorded by 24 or more geophones spaced 1 to 3 m apart and aligned in a linear array and connected to a seismograph. Energy sources are the same as those outlined above for SASW testing. When applying the MASW technique to develop a one-dimensional (1-D) V_S model, the surface-wave data preferably is acquired using multiple-source offsets at both ends of the array. Rayleigh and Love wave MASW acquisition can easily be combined with P- and S-wave seismic refraction acquisition, respectively. A wavefield transform is applied to the time-history data to convert the seismic record from time-offset space to phase velocity-frequency space in which the surface-wave dispersion curve can be easily identified. Common wave-field transforms include the frequency-wavenumber (f-k) transform, slant-stack transform (τ-p), frequency domain beamformer, and phase-shift transform.

A detailed discussion of the array microtremor method can be found in Okada, 2003. This technique uses 4, or more receivers aligned in a 2-dimensional array. Triangle, circle, semi-circle, and "L" shaped arrays are commonly used, although any 2-dimensional arrangement of receivers can be used. For investigation of the upper 100 m, receivers typically consist of 1 to 4.5 Hz geophones. The triangle array, which consists of several embedded equilateral triangles, is often used as it provides good results with a relatively small number of geophones. With this array, the outer side of the triangle should be at least equal to the desired depth of investigation. The "L" array is useful at sites located at the corner of perpendicular intersecting streets. Typically 20, or more, 30-second noise records are acquired for analysis. The surface wave dispersion curve is typically estimated from array microtremor data using various f-k methods such as beam-forming (Lacoss, *et al*., 1969) and maximum-likelihood (Capon, 1969); and the spatial-autocorrelation (SPAC) method, which was originally based on work by Aki, 1957. The SPAC method has since been extended and modified (Ling and Okada, 1993 and Ohori *et al*., 2002) to permit the use of noncircular arrays, and is now collectively referred to as extended spatial autocorrelation (ESPAC or ESAC).

The refraction microtremor technique (ReMi™), a detailed description of which can be found in Louie, 2001, differs from the more established array microtremor technique in that it uses a linear receiver array rather than a two dimensional array. Unlike the SASW method, which uses an active energy source (i.e. hammer), the microtremor technique records background noise emanating from ocean wave activity, wind noise, traffic, industrial activity, construction, etc. Refraction microtremor field procedures typically consist of laying out a linear array of 24, or more, 4.5 Hz geophones and recording 20, or more, 30 second noise records. These noise records are reduced using the software package SeisOpt® ReMi™ v2.0 by Optim™ Software and Data Services. This package is used to generate and combine the slowness (p) – frequency (f) transform of the noise records. The surface wave dispersion curve is picked at the lower envelope of the surface wave energy identified in the p-f spectrum. It should be noted that other data reduction techniques such as seismic interferometry and extended spatial autocorrelation (ESAC) can also be used to extract surface wave dispersion curves from linear array, passive surface wave data.

The horizontal-to-vertical spectral ratio (H/V spectral ratio or HVSR) technique was first introduced by Nogoshi and Igarashi (1971) and popularized by Nakamura (1989). This technique utilizes single-station recordings of ambient vibrations (microtremor or noise) made with a three-component seismometer. In this method, the ratio of the Fourier amplitude spectra of the horizontal and vertical components is calculated to determine the frequency of the maximum HVSR response (HVSR peak frequency), commonly accepted as an approximation of the fundamental frequency (f_0) of the sediment column overlying bedrock. The HVSR peak frequency associated with bedrock is a function of the bedrock depth and S-wave velocity of the sediments overlying bedrock. The theoretical HVSR response can be calculated for an S-wave velocity model using modeling schemes based on surface wave ellipticity, vertically propagating body waves, or diffuse wavefields containing body and surface waves. The HVSR frequency peak can also be estimated using the quarter-wavelength approximation:

$$f_0 = \frac{\overline{V}_S}{4z}$$

where f_0 is the site fundamental frequency and $\overline{V}_S$ is the average shear-wave velocity of the soil column overlying bedrock at depth z.

The active and passive surface wave techniques complement one another as outlined below:

- SASW/MASW techniques image the shallow velocity structure which cannot be imaged by the microtremor technique and is needed for an accurate V_{S30}/V_{S100ft} estimate.
- Microtremor techniques work best in noisy environments where SASW/MASW depth investigation may be limited.
- In a noisy environment the microtremor technique will usually extend the depth of an SASW/MASW sounding.
- The degree of fit in the overlapping portion of the dispersion curves from the two techniques provides a level of confidence in the results.

The dispersion curves generated from the active and passive surface wave soundings are generally combined and modeled using iterative forward and inverse modeling routines. The

final model profile is assumed to represent actual site conditions. Several options exist for the Rayleigh wave forward solution: a formulation that takes into account only fundamental-mode Rayleigh wave motion; one that includes all stress waves and incorporates receiver geometry in an SASW test named the 3-D solution (Roesset et al., 1991); one that computes an effective mode for an MASW test but assumes a plane Rayleigh wave and no body wave effects and a multi-mode solution that models different Rayleigh wave modes. Both fundamental mode and multi-mode forward solutions are available for modeling of Love wave data.

The theoretical model used to interpret the dispersion assumes horizontally layered, laterally invariant, homogeneous-isotropic material. Although these conditions are seldom strictly met at a site, the results of active and/or passive surface wave testing provide a good "global" estimate of the material properties along the array. The results may be more representative of the site than a borehole "point" estimate.

It may not always be possible to develop a coherent, fundamental mode dispersion curve over sufficient frequency range for modeling from MASW or SASW data due to dominant higher modes with the higher modes not clearly identifiable for multi-mode modeling. It may, however, be possible to identify the Rayleigh wave phase velocity of the fundamental mode at 40 m wavelength (V_{R40}) in which case V_{S30} can at least be estimated using the Brown et al., 2000 relationship:

$$V_{S30} = 1.045 V_{R40}$$

This relationship was established based on statistical analysis of a large number of surface wave data sets from sites with control by velocities measured in nearby boreholes and has been further tested by Martin and Diehl, 2004, and Albarello and Gargani, 2010.

As with all surface geophysical methods, inversion of surface wave dispersion data does not yield a unique V_S model and there are multiple possible solutions that may equally well fit the experimental data. Based on our experience at other sites, the shear wave velocity models (V_S and layer thicknesses) determined by surface wave testing are within 20% of the velocities and layer thicknesses that would be determined by other seismic methods [Brown, 1998]. The average velocity of the upper 30 m or 100 ft, however, is much more accurate, often to better than 5%, because it is not sensitive to the layering in the model. V_{S30} does not appear to suffer from the non-uniqueness inherent in V_S models derived from surface wave dispersion curves (Martin et al., 2006, Comina et al., 2011). Therefore, V_{S30} is more accurately estimated from inversion of surface wave dispersion data than the resulting V_S models.

3 FIELD PROCEDURES

Four (4) profiles were established at the site and designated as Lines 1 through 4. The endpoints of the geophysical profiles were marked in the field and surveyed by **GEO***Vision* staff using a Trimble ProXRS GPS with OmniStar submeter corrections. All geophone and shot point locations were measured using a 100 meter tape measure. The locations of the geophysical traverses are presented in Figure 1 and tabulated in Table 1. Active surface wave data were acquired using the MASW technique. Passive surface wave data were acquired using the array and refraction microtremor method. HVSR measurements were made near borehole locations and nominally at the center of the surface wave arrays.

A typical MASW field layout is shown in Appendix A. MASW equipment used during this investigation consisted of two Geometrics Geode signal enhancement seismographs, 4.5 Hz vertical geophones, seismic cable, 20 lb sledgehammer, and an aluminum plate. MASW data were acquired along linear arrays of 48 geophones spaced 1.5 to 2.5 m apart. Shot points were located up to 9 m from the end geophone locations, as space was available and at every second geophone interval along the array. The 20 lb sledgehammer was used for the offset source locations and interior source locations. Data from the transient impacts (hammers) were averaged 5 times, or more, to improve the signal-to-noise ratio. Photographs of typical MASW equipment are presented in Appendix A. All seismic records were stored on a laptop computer with file names and acquisition parameters documented on a field log.

The passive surface wave equipment consisted of two Geometrics Geode signal enhancement seismographs, 4.5 Hz vertical geophones, and seismic cables. Passive surface wave data were acquired along linear arrays of 48, 4.5 Hz geophones coincident with the MASW arrays. Ambient noise measurements were made along these arrays for at least 30 minutes at a 2 ms sample rate (60+, 30 second records). All passive surface wave data were stored on a laptop computer for later processing. The field geometry and associated files names were documented in field data acquisition forms.

HVSR data were acquired at a seven locations on site (Figure 1) utilizing either a Nanometrics Trillium Compact 120 second seismometer coupled to a Nanometrics Centaur data acquisition unit (referred to herein as Trillium) and a Micromed Tromino® ENGY (herein referred to as Tromino). Microtremor measurements were made for at least 30 minutes at each measurement location with data recorded at 100 samples per second with the Trillium and 128 samples per second with the Tromino. Microtremor data were stored in the data acquisition system and downloaded as Miniseed or ASCII format files at the end of data acquisition.

4 DATA REDUCTION AND MODELING

HVSR data were reduced using the Geopsy Version 2.9.1 software package (http://www.geopsy.org) developed by Marc Wathelet, ISTerre, Grenoble, France with the help of many other researchers.

Microtremor data recorded by the Trillium were exported to miniseed format and the Tromino data were exported to an ASCII file using the software package Grilla, provided with the instrument. The data file was then loaded into the Geopsy software package, where data file columns containing the vertical and horizontal (north and east) components and the sample rate were specified. HVSR was typically calculated over a frequency range dependent upon the observed site response and using a time window length of 90 s. Time windows were automatically picked. Fourier amplitude spectra were calculated after applying a 5% cosine taper and smoothed by the Konno and Ohmachi filter with a smoothing coefficient value of 40. The vertical amplitude spectra were divided by the root-mean-square (RMS) of the horizontal amplitude spectra to calculate the HVSR for each time window and the average HVSR. Time windows containing clear transients (nearby foot or vehicular traffic) or yielding poor quality results were then deleted and the computations repeated. The average HVSR peak frequency and standard deviation from all time windows used for analysis were computed and presented along with the standard deviation of the HVSR amplitudes for all time windows.

The 2D MASW data were reduced using the software Seisimager/SW developed by Geometrics, Inc. and Seismic Pro Surface V8 developed by Geogiga using the following steps:

- Input all seismic records collected along a profile and geometry into Seisimager.
- Calculate cross correlation of all pairs of receivers over a multiple user-defined offset ranges and sort by the midpoint of the receiver a pair.
- Combine cross correlations gathers with different receiver spacings, specific offset range, and a common midpoint at 15 or 16 m (~50 ft) intervals along each profile, outputting the data file.
- Input common midpoint cross correlation gather seismic records into Seismic Pro Surface software.
- Apply wavefield transform to seismic record to convert the data from time – offset to phase velocity – frequency space.
- Identify and pick Rayleigh wave dispersion curve.
- Repeat for all shot records.
- Apply near-field criteria (maximum wavelength equal 1 to 1.3 times the source to midpoint of receiver array distance).
- Merge multiple dispersion curves associated with the same receiver midpoint (i.e. position along the profile at 15 or 16 m (~50 ft) intervals) but different offset ranges used for the cross correlation gathers, as necessary.

Array and refraction microtremor data were extracted along 30 m intervals of the seismic lines which were approximately centered at the midpoint of the MASW cross correlation gathers. The array microtremor data were reduced using the software Seisimager SW developed by Oyo Corporation/Geometrics, Inc. and the following steps:

- Input all seismic records for a dataset into software.
- Load geometry (x and y positions) for each channel in seismic records.
- Calculate the SPAC coefficients for each seismic record and average.
- For each frequency calculate the RMS error between the SPAC coefficients and a Bessel function of the first kind and order zero over a user defined phase velocity range and velocity step.
- Plot an image of RMS error as a function for frequency (f) and phase velocity (v).
- Identify and pick the dispersion curve as the continuous trend on the f-v image with the lowest RMS error.
- Convert dispersion curves to appropriate format for modeling.
- Combine multiple passive dispersion curves, as appropriate.
- Calculate a representative dispersion curve for the passive dispersion data using a moving average polynomial curve fitting routine.

The refraction microtremor data were reduced using the Optim™ Software and Data Services SeisOpt® ReMi™ v5.0 data analysis package. Data reduction steps included the following:

- Conversion of SEG-2 format field files to SEG-Y format.
- Data preprocessing which includes trace-equalization gaining and DC offset removal.
- Erasing receiver geometry present in the file header.
- Computing the velocity spectrum of each record by p-f transformation.
- Combining the individual p-f transforms into one image.
- Picking and saving the velocity spectrum image.
- Reformat dispersion data to input format for modeling software.

The Rayleigh wave dispersion curves from various coincident data sets were combined (all MASW and passive dispersion data for a 1D sounding or all data with the midpoint of the receiver array over a user defined position range along a profile) to form a composite dispersion curve. Composite dispersion curves were generated at 15 m intervals along Lines 1, 3, and 4, and at 16 m intervals along Line 2. A total of 20 composite dispersion curves were developed for modeling along the profiles. A representative dispersion curve was calculated for each composite dispersion curve using the moving average polynomial curve fitting routine in the software package WinSASW V3.

An iterative forward and inverse modeling process was used to generate an S-wave velocity model for each representative dispersion curve. During this process an initial velocity model was generated based on general characteristics of the dispersion curve. The dispersion curve for this model was then calculated and compared to the observed dispersion curves. Adjustments were then made to the model parameters (layer thickness and V_S) manually (forward modeling) and automatically (inverse modeling) until an acceptable agreement with the observed data was obtained. Rayleigh wave dispersion data were modeled using the fundamental and effective mode forward and inverse modeling routine in the WinSASW V3 software package.

Data inputs into the Rayleigh wave modeling software include layer thickness, S-wave velocity, P-wave velocity, and mass density. Because the primary purpose of this investigation was to

develop 2D images of velocity structure along several profiles, models had about twice the number of layers typically used for modeling.

P-wave velocity and mass density only have a very small influence (i.e. less than 10%) on the S-wave velocity model generated from a surface wave dispersion curve. However, realistic assumptions for P-wave velocity, which is significantly impacted by the location of the saturated zone, and mass density will slightly improve the accuracy of the S-wave velocity model.

Constant mass density values of 1.9 to 2.2 g/cm^3 were used in the profile for subsurface soils/rock depending on P- and S-wave velocity. Within the normal range encountered in geotechnical engineering, variation in mass density has a negligible (±2%) affect on the estimated V_S from surface wave dispersion data. During modeling of Rayleigh wave dispersion data, the compression wave velocity, V_P, for unsaturated sediments was estimated using a Poisson's ratio, ν, of 0.3 and the relationship:

$$V_P = V_S \left[(2(1-\nu))/(1-2\nu)\right]^{0.5}$$

Poisson's ratio has a larger affect than density on the estimated V_S from Rayleigh wave dispersion data. Achenbach (1973) provides approximate relationship between Rayleigh wave velocity (V_R), V_S and ν:

$$V_R = V_S \left[(0.862 + 1.14\,\nu)/(1+\nu)\right]$$

Using this relationship, it can be shown that V_S derived from V_R only varies by about 10% over possible 0 to 0.5 range for Poisson's ratio where:

$V_S = 1.16V_R$ for $\nu = 0$
$V_S = 1.05V_R$ for $\nu = 0.5$

The realistic range of the Poisson's ratio for typical unsaturated sediments is about 0.25 to 0.35. Over this range, V_S derived from modeling of Rayleigh wave dispersion data will vary by about 5%. An intermediate Poisson's ratio of 0.3 was selected for modeling to minimize any error associated with the assumed Poisson's ratio.

To reduce errors associated with expected high Poisson's ratio of saturated sediments, the saturated zone was anchored at an assumed depth of about 33 ft, based on borehole data provided by Arup, Inc., when modeling the surface wave dispersion data. Poisson's ratio of the saturated zone was set to about 0.46 depending on the modeled S-wave velocity (e.g. higher velocity sediments expected to have a lower Poisson's ratio in the saturated zone).

5 INTERPRETATION AND RESULTS

S-wave velocity models were developed at nominal 50 ft intervals along each profile. A sample of the developed 1D S-wave velocity model is presented as Figure 2. The velocity models were combined and color enhanced contour maps developed to present the S-wave velocity structure beneath each profile. S-wave velocity models for Lines 1 to 4 are presented in Figures 3, 4, 5, and 6, respectively.

The Rayleigh wave phase velocities from the shallower MASW and deeper passive surface wave measurements were generally found to be in good agreement in the region of overlapping wavelengths as shown on Figure 2. The velocity models developed for each representative dispersion curve reflect the average velocity structure beneath the arrays. For MASW and passive surface wave data collected along Lines 1 to 4, the velocity models generally reflect the average velocity structure beneath approximate 100 ft segments of the profiles centered on the measurement locations, which was necessary to achieve the desired depth of investigation. It should be noted that the V_S models only shown to approximately 50 ft from the end locations of the seismic lines. Depth of investigation of the models is about 100 ft.

The S-wave velocity of the Franciscan complex is not well constrained by the surface wave V_S models. The PS Suspension log from **GEO***Vision* Report 18113-01 indicates that the velocity of the Franciscan complex may be highly variable and contain velocity inversions (higher velocity material overlying lower velocity material) at this site. Surface wave techniques cannot resolve such structures at depth and, therefore, velocities are likely more representative of the rocks average velocity structure. The resolution decreases gradually with depth due to the loss of sensitivity of the dispersion curve to changes in V_S at greater depth. The surface wave V_S models should only be used to determine the approximate depth Franciscan complex. The surface wave phase velocity data was degraded in the northwestern portion of the site where bedrock is shallowest due to probable higher modes influence on the surface wave phase velocity data.

In general, the subsurface velocity structure consists of the surficial layer of sediments with a S-wave velocity of about 1,200 ft/s or less. Followed by a thicker zone of sediments with a S-wave velocity ranging from greater than 1,200 ft/s to 1,800 ft/s. The top of Franciscan complex bedrock corresponds with the 2,000 to 2,200 ft/s velocity contours and have been interpreted to approximately track the 2,000 ft/s contour shown on S-wave velocity models for discussion purposes. The contact of the sediments and Franciscan generally deepens to the south and west along the V_S profiles.

The V_S model for Line 1 is presented as Figure 3. Seismic velocity increases to 2,000 ft/s at a depth of about 38 ft beneath western end of the model, about 22 ft beneath the central portion of the model, and 19 ft beneath the eastern portion of the model. The average S-wave velocity of the upper 30 m (V_{S30}) ranges from about 566 at the western portion to 743 ft/s at the eastern portion of the model.

The V_S model for Line 2 is presented as Figure 4. Seismic velocity increases to 2,000 ft/s at a depth of about 40 ft beneath southern end of the model, about 30 ft beneath the central portion of the model, and 18 ft beneath the northern end of the model. The average S-wave velocity of the

upper 30 m ranges from about 567 at the southern portion of the model to 705 ft/s at the northern portion of the model.

The V_S model for Line 3 is presented as Figure 5. Seismic velocity increases to 2,000 ft/s at a depth of about 65 ft beneath western end of the model, about 56 ft beneath the central portion of the model, and 47 ft beneath the eastern end of the model. The average S-wave velocity of the upper 30 m ranges from about 479 at the western portion of the model to 516 ft/s at the eastern portion of the model.

The V_S model for Line 4 is presented as Figure 6. Seismic velocity increases to 2,000 ft/s at a depth of about 69 ft beneath southern end of the model, about 57 ft beneath the central portion of the model, and 48 ft beneath the northern end of the model. The average S-wave velocity of the upper 30 m ranges from about 478 at the southern portion of the model to 552 ft/s at the northern portion of the model.

The observed HVSR data for locations HV1 to HV7 are presented in Figures 7 and 8. The HVSR data collected at the seven locations are very similar, indicating that even the more subtle features likely have geologic origin. The dominant feature in the HVSR data is a high amplitude peak at a frequency of ranging from about 1.8 to 2.1 Hz, which is likely associated with an S-wave velocity structure at a greater depth than the sediment and Franciscan complex contact. However, the HVSR peak frequency is an approximation of the fundamental site frequency and is likely related to Franciscan becoming competent bedrock. Additionally, there is subtle, lower amplitude, high frequency HVSR peak at a frequency of range of about 10 to 12 Hz observed at HV4, HV5, and HV7. This peak may be related to the increase in S-wave velocity associated with the top of shallow Franciscan complex along this portion of the site.

6 CONCLUSIONS

Active and passive surface wave measurements were performed at the proposed locations of the MTA Potrero Facility, San Francisco, California. The primary purpose of the surface geophysical investigation was to map depth to bedrock beneath four seismic lines designated as Lines 1 through 4. The secondary purpose of the investigation was to provide a shear (S) wave velocity of the bedrock and overlying sediments and estimate the average S-wave velocity of the upper 30 m (V_{S30}). The active surface wave technique utilized during this investigation consisted of the multi-channel analysis of surface waves (MASW) method. The passive surface wave techniques consisted of the horizontal over vertical spectral ratio (HVSR), array microtremor, and refraction microtremor methods. The locations of the geophysical testing arrays are presented in Figure 1 and Table 1.

Color enhanced contour maps were developed to present the S-wave velocity structure beneath each profile. S-wave velocity models for Lines 1 to 4 are presented in Figures 3, 4, 5, and 6, respectively. The top of Franciscan complex bedrock is interpreted to approximately correspond to the 2,000 to 2,200 ft/s velocity contours shown on S-wave velocity models. The contact of the sediments and Franciscan generally deepens to the south and west along the V_S profiles. The velocities of the Franciscan complex may be highly variable and contain velocity inversions at this site. Therefore, velocities of the Franciscan derived from the surface wave techniques likely are more representative of the average rock velocities. Depth of investigation of the models is about 100 ft.

Observed HVSR data are presented as Figures 7 and 8. The dominant feature in the HVSR data is a high amplitude peak at a frequency of ranging from about 1.8 to 2.1 Hz, which is likely associated with an S-wave velocity structure at a greater depth than the sediment and Franciscan complex contact. However, the HVSR peak frequency is related to the fundamental site frequency which is likely related to Franciscan becoming competent bedrock at depth beneath the site.

The average S-wave velocity of the upper 30 m (V_{S30}) ranges from about 478 to 743 ft/s. Therefore, according to the Uniform and International Building Codes, the area in the vicinity of the surface wave arrays is classified as Class C, very dense soil and soft rock.

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8 CERTIFICATION

All geophysical data, analysis, interpretations, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a **GEO*Vision*** California Professional Geophysicist.

Prepared by



5/2/2018

David Carpenter — Date
California Professional Geophysicist, P.Gp. 1088
GEO*Vision* Geophysical Services

* This geophysical investigation was conducted under the supervision of a California Professional Geophysicist using industry standard methods and equipment. A high degree of professionalism was maintained during all aspects of the project from the field investigation and data acquisition, through data processing interpretation and reporting. All original field data files, field notes and observations, and other pertinent information are maintained in the project files and are available for the client to review for a period of at least one year.

  A professional geophysicist's certification of interpreted geophysical conditions comprises a declaration of his/her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations or ordinances.

TABLES

TABLE 1 Location of Geophysical Arrays

Location	Easting	Northing
Line 1, Distance = 0 ft	6,009,538	2,106,323
Line 1, Distance = 231 ft	6,009,769	2,106,332
Line 2, Distance = 0 ft	6,009,789	2,106,011
Line 2, Distance = 308 ft	6,009,771	2,106,320
Line 3, Distance = 0 ft	6,009,551	2,105,976
Line 3, Distance = 231 ft	6,009,782	2,105,992
Line 4, Distance = 0 ft	6,009,589	2,105,969
Line 4, Distance = 385 ft	6,009,573	2,106,354
HV1 Location	6,009,553	2,106,322
HV2 Location	6,009,611	2,106,020
HV3 Location	6,009,578	2,106,145
HV4 Location	6,009,717	2,106,243
HV5 Location	6,009,783	2,106,185
HV6 Location	6,009,663	2,106,323
HV7 Location	6,009,767	2,106,331

Note: Coordinates in California State Plane Coordinate System, NAD83 Zone 3 (0403), US Survey Feet.

FIGURES



Legend

- Active and Passive Surface Wave Array
- H/V

NOTES:
1. California State Plane Coordinate System, NAD 83, Zone VI (0406), US Survey Feet
2. Base map source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

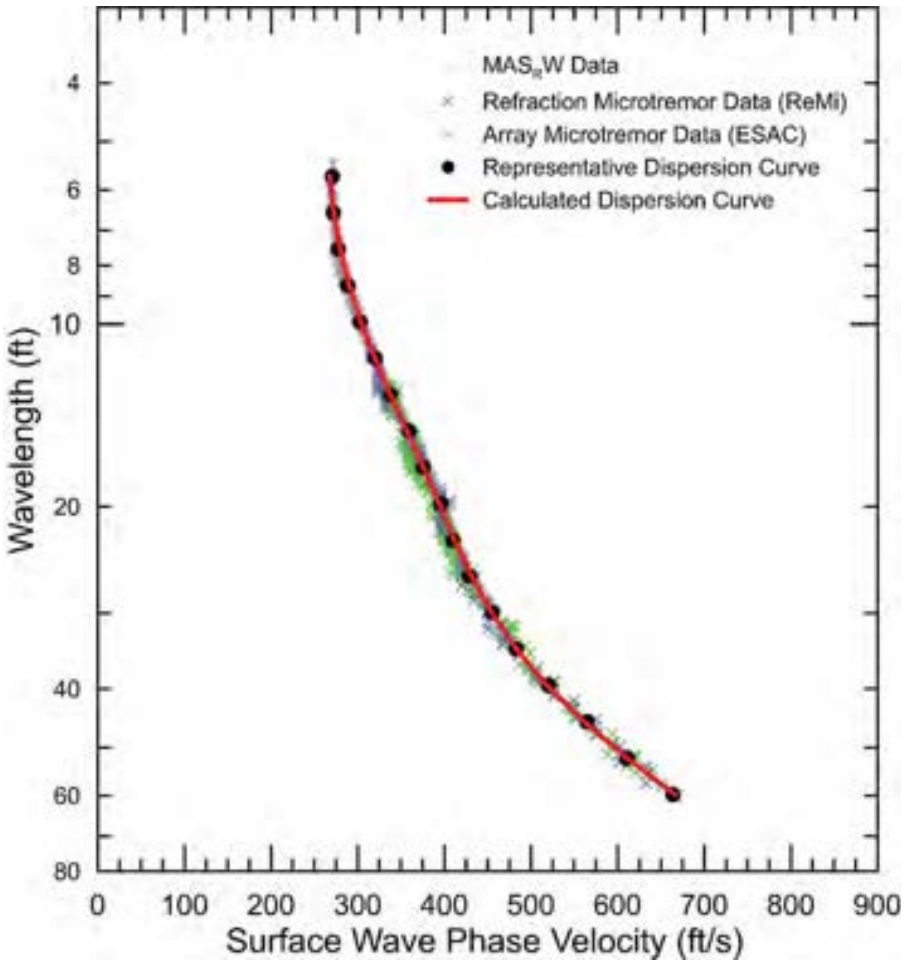
GEOVision geophysical services

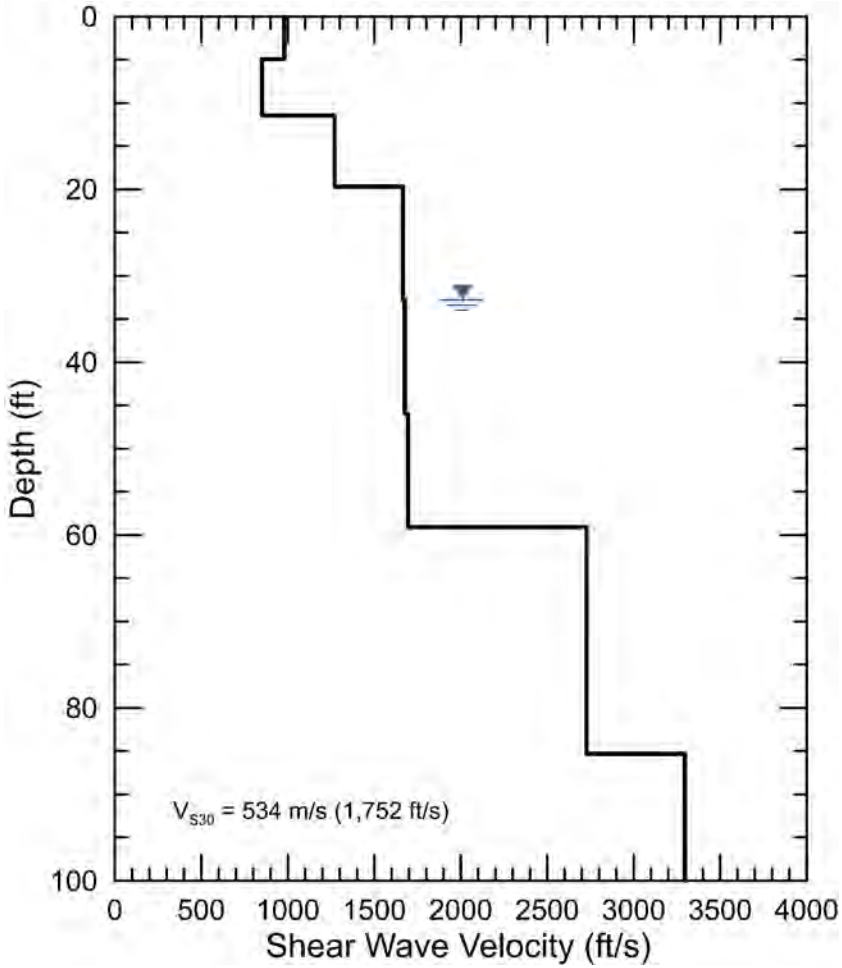
Date:	4/5/2018
GV Project:	17465
Developed by:	D Carpenter
Drawn by:	T Rodriguez
Approved by:	A Martin
File Name:	18113_1.MXD

FIGURE 1
SITE MAP

SITE LOCATED AT
MTA POTRERO SITE
SAN FRANCISCO, CALIFORNIA

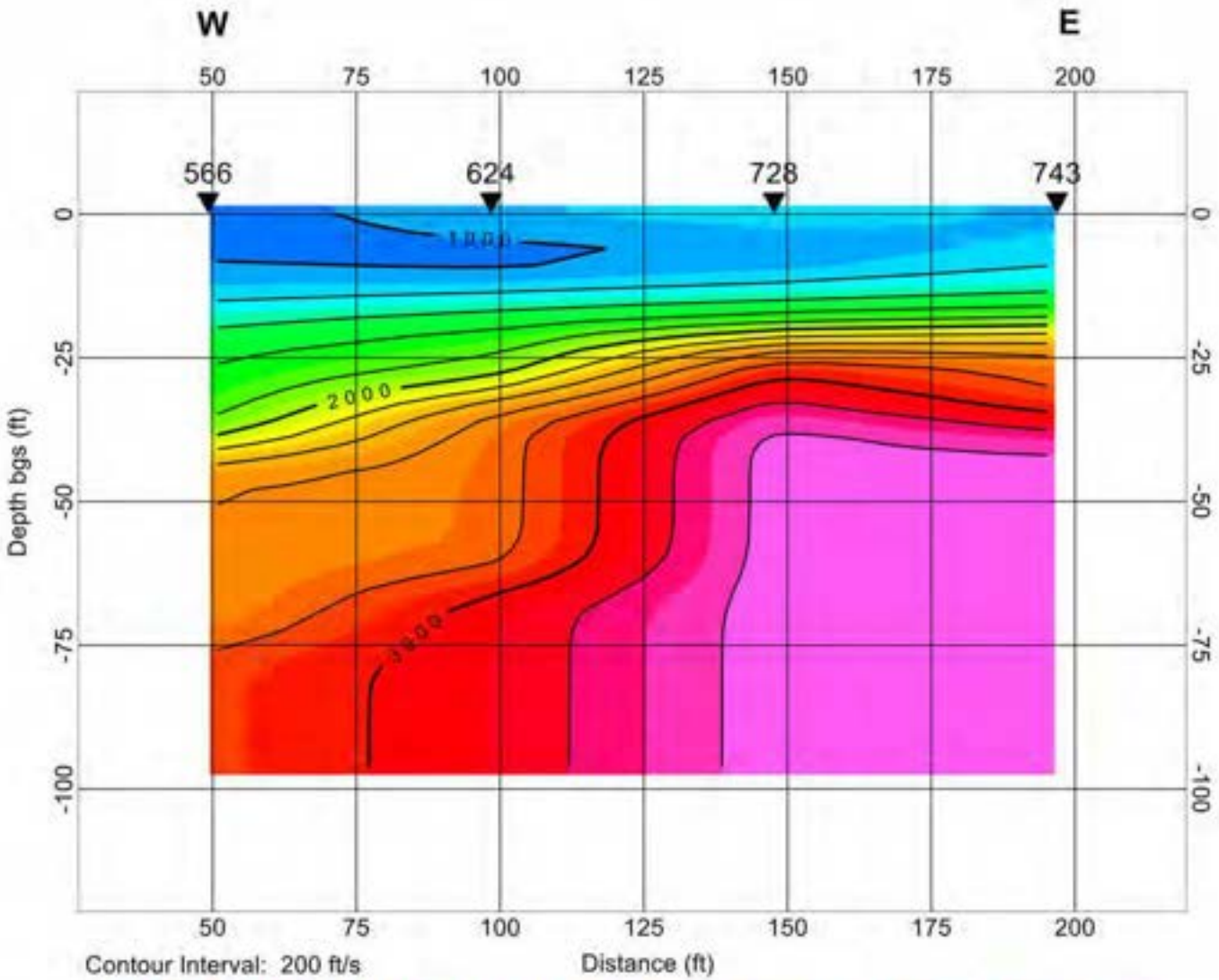
PREPARED FOR
ARUP NORTH AMERICA LTD





Line 4 Distance 197 ft - Field, representative and calculated surface wave dispersion data (left) and associated V_S model (right)

GEOVision geophysical services	Figure 2 Sample 1D Surface Wave Model - Line 4 Distance 197 ft Active and Passive Surface Wave Arrays
Project No.: 18113	MTA Potrero Site San Francisco, California
Date: May 1, 2018	
Drawn By: D. Carpenter	
Approved By: D. Carpenter	Prepared for Arup, Inc.
File P:\Project Files\2018\18113-Arup San Fran...\Report\Figure2.cdr	



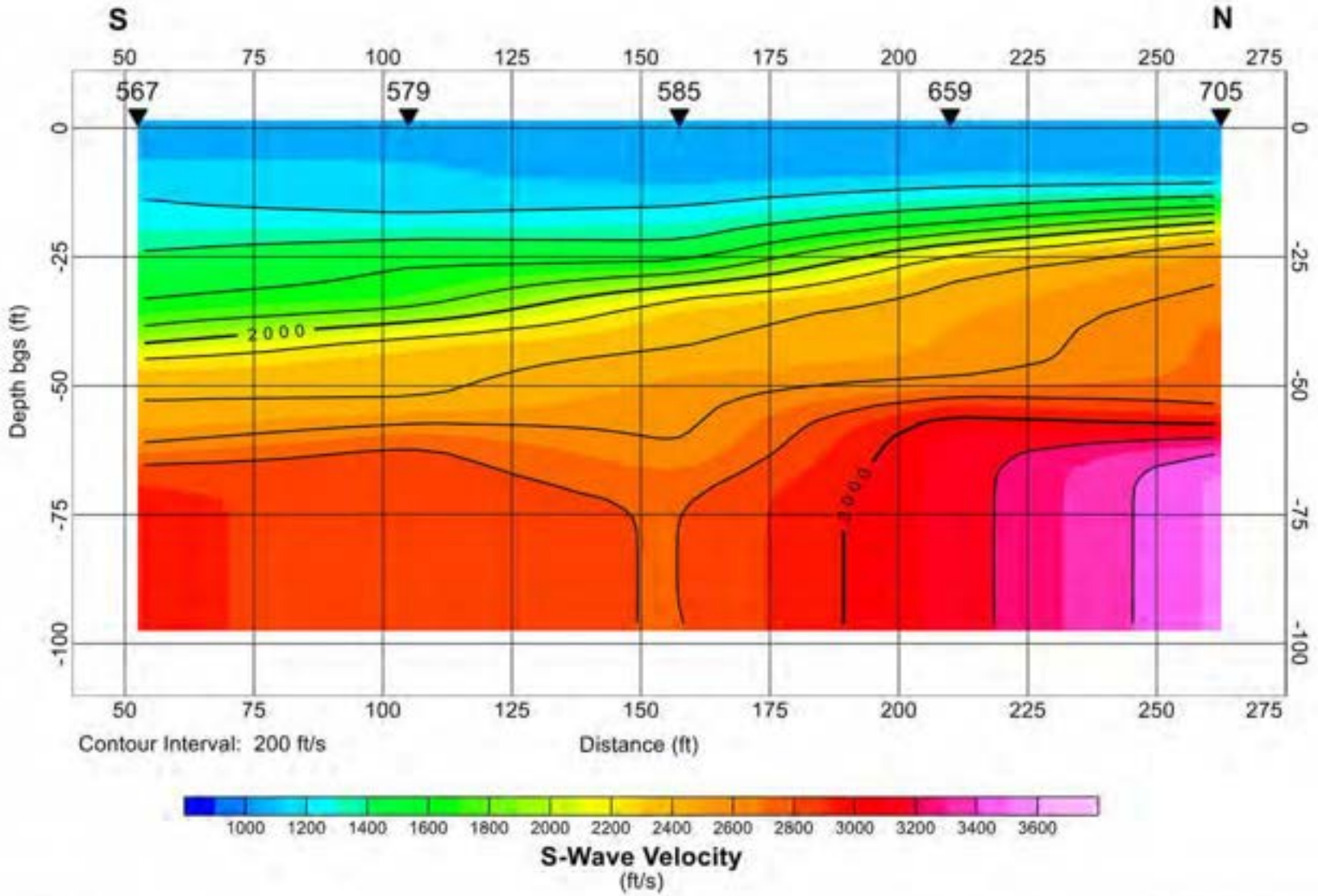
GEOVision geophysical services

Figure 3

Line 1: S-Wave Velocity Model
GV Project No. 18113

MTA Potrero Site
San Francisco, CA

Prepared for Arup, Inc.



LEGEND

705 ▼ Sounding Location and Vs30 (m/s)

25 0 25
(feet)

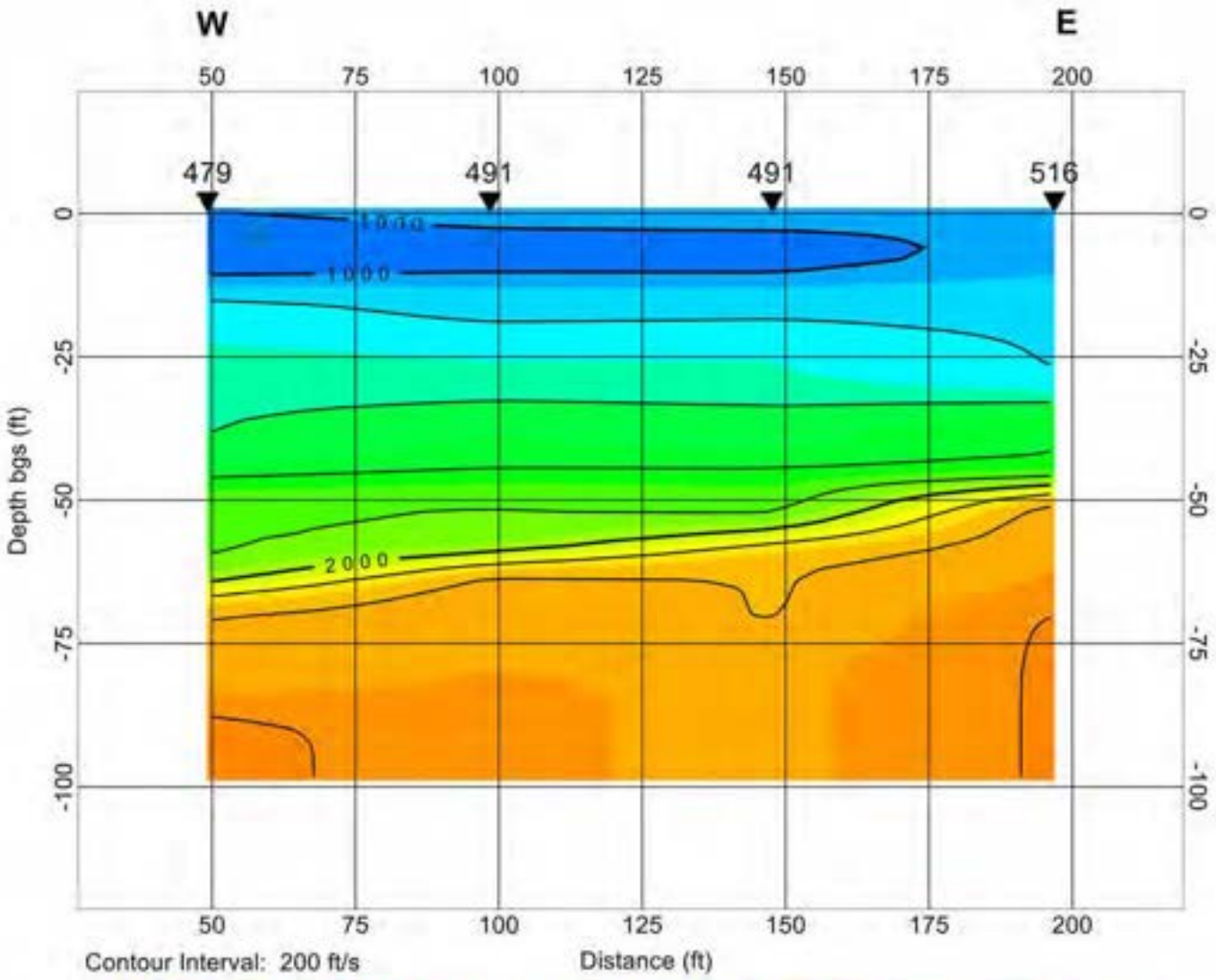
GEOVision geophysical services

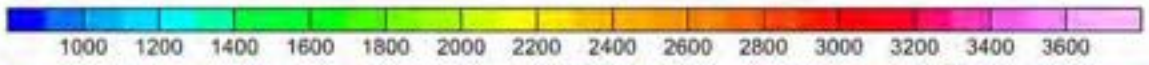
Figure 4

Line 2: S-Wave Velocity Model
GV Project No. 18113

MTA Potrero Site
San Francisco, CA

Prepared for Arup, Inc.





S-Wave Velocity
(ft/s)

LEGEND

552 ▼ Sounding Location and Vs30 (m/s)

25 0 25
(feet)

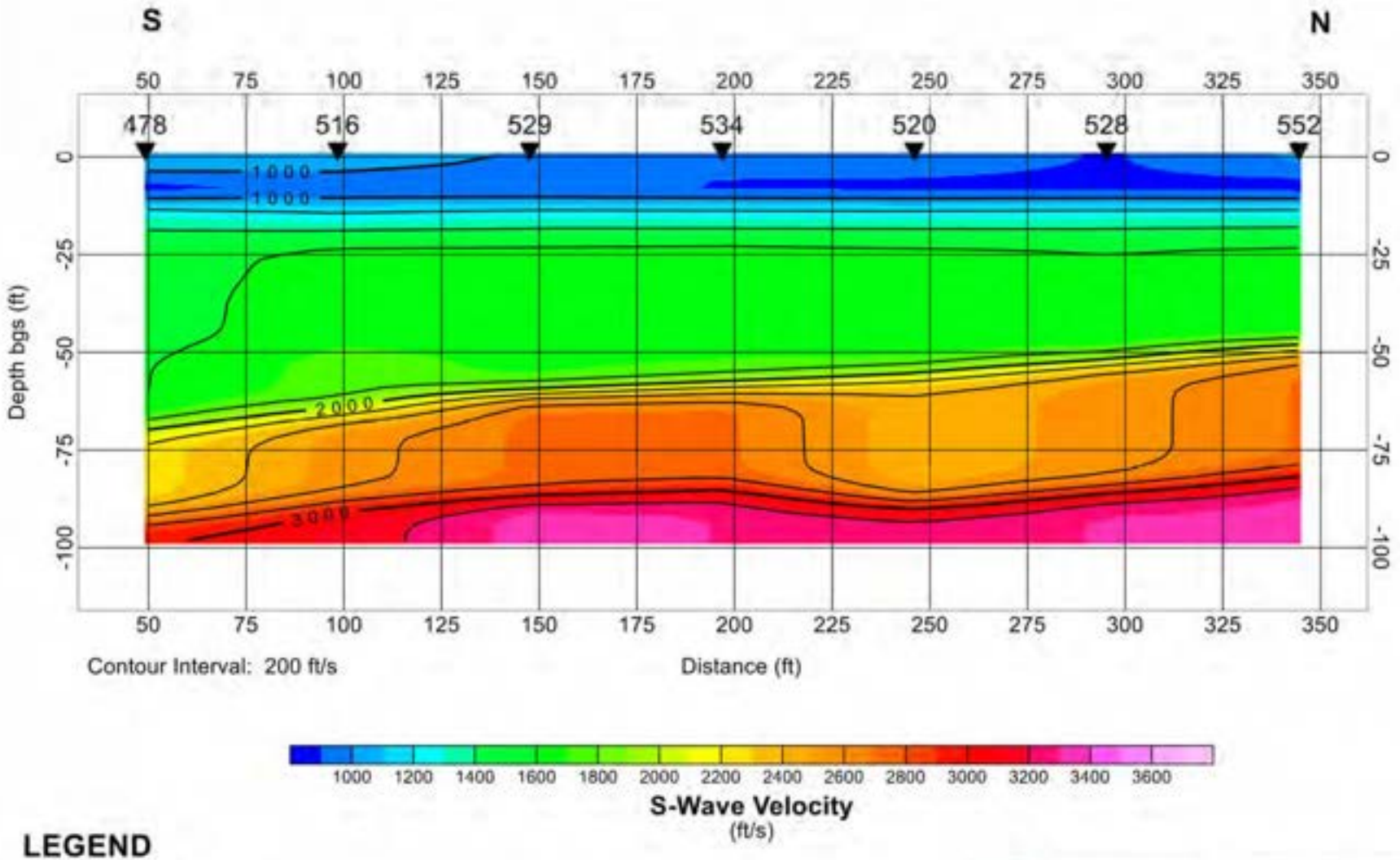
GEOVision geophysical services

Figure 5

Line 3: S-Wave Velocity Model
GV Project No. 18113

MTA Potrero Site
San Francisco, CA

Prepared for Arup, Inc.



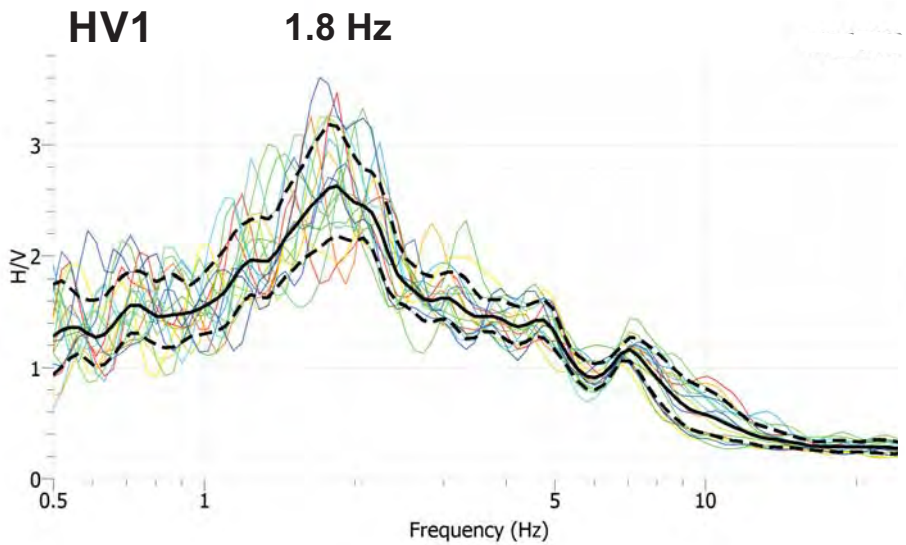
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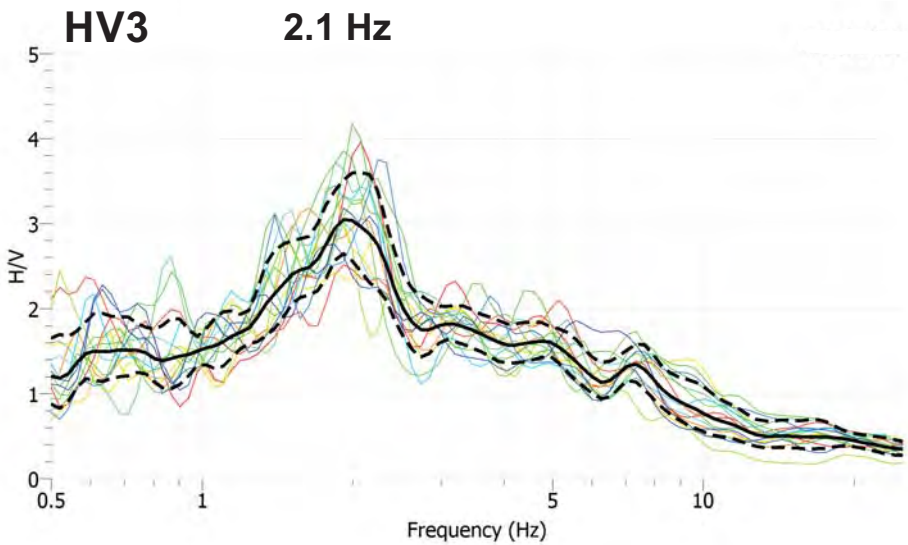
Figure 6

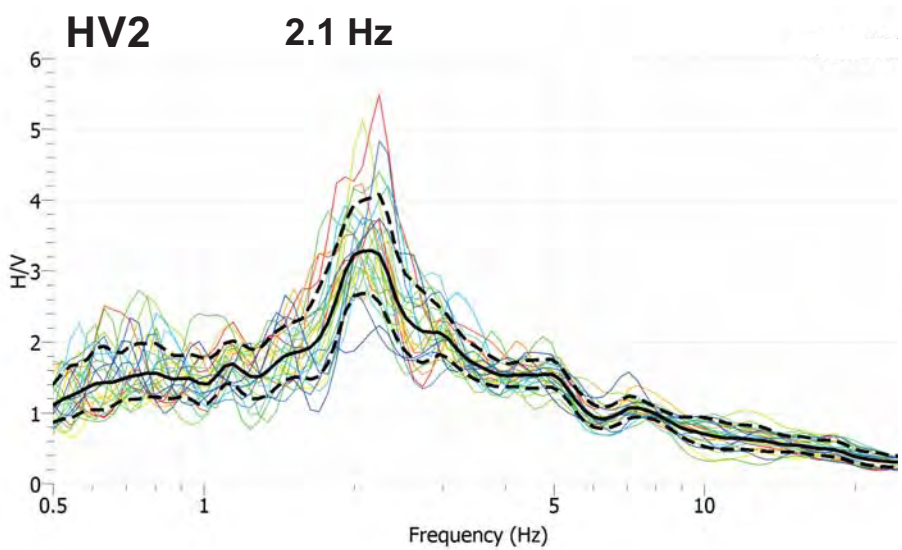
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GV Project No. 18113

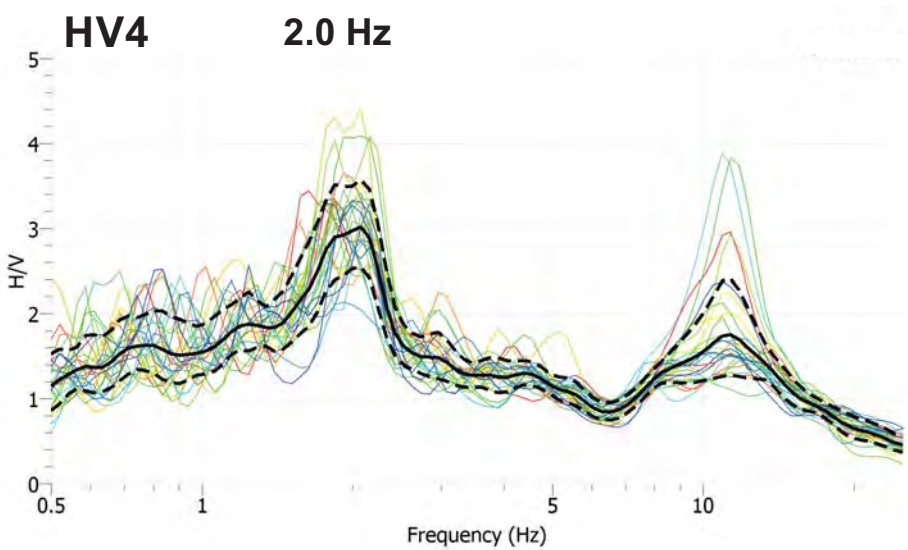
MTA Potrero Site
San Francisco, CA

Prepared for Arup, Inc.





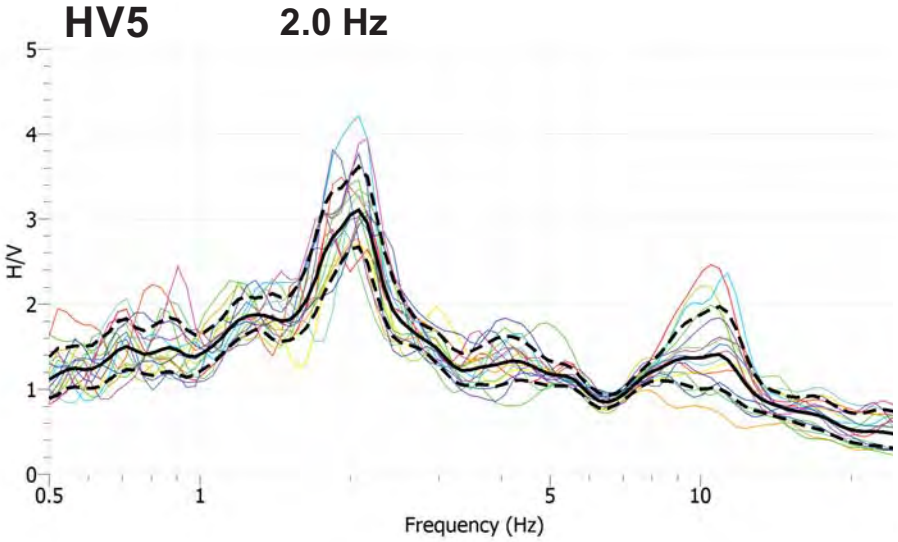


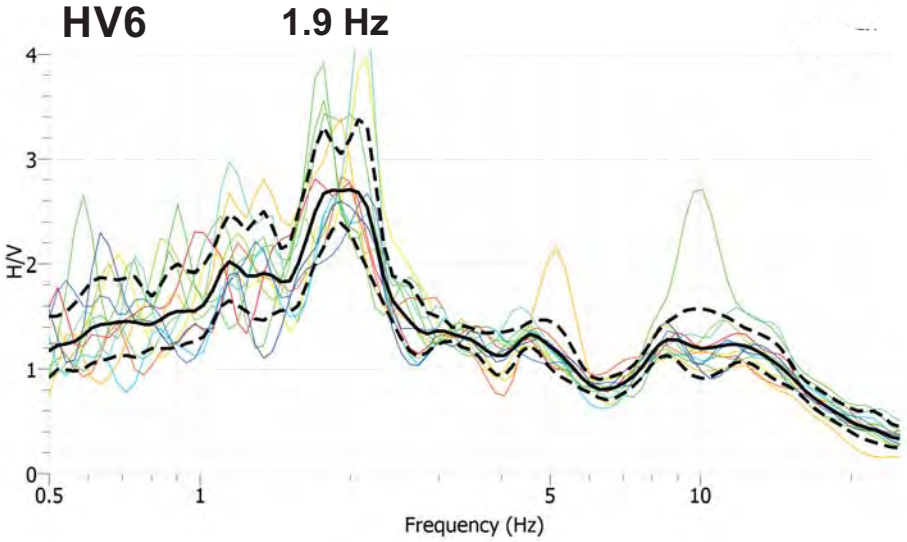


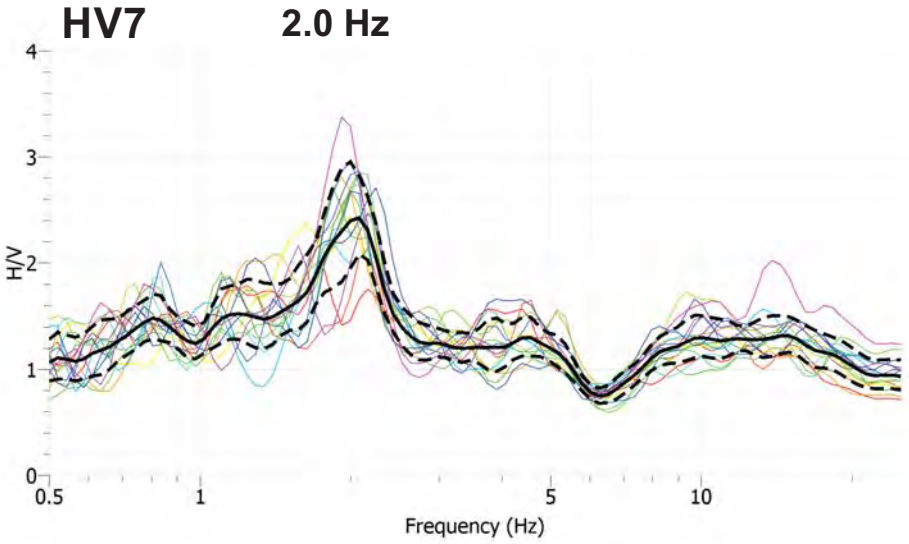
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Project No.: 18113	Figure 7 HVSR Data - Stations HV1 to HV4
Date: May 1, 2018	Site Located at MTA Potrero Facility San Francisco, California
Drawn By: D. Carpenter	
Approved By: A. Martin	Prepared for Arup, Inc.

File P:\...Project Files\2018\18113-Arup San Fran...\Report\Figure7.cdr







GEOVision geophysical services	Figure 8 HVSR Data - Stations HV5 to HV7
Project No.: 18113	Site Located at MTA Potrero Facility San Francisco, California
Date: May 1, 2018	
Drawn By:D. Carpenter	
Approved By: A. Martin	Prepared for Arup, Inc.
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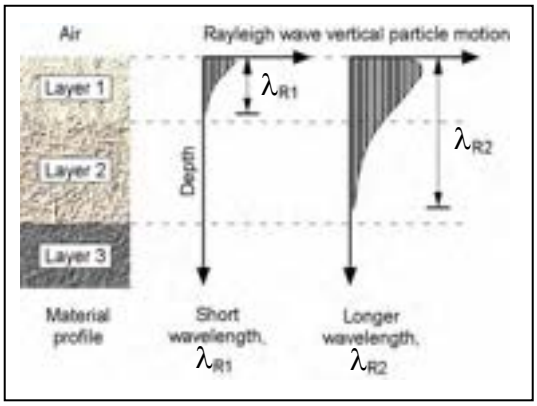
APPENDIX A

ACTIVE AND PASSIVE SURFACE WAVE TECHNIQUES

GEOVision geophysical services

Overview

Active and passive surface wave techniques are relatively new in-situ seismic methods for determining shear wave velocity (V_S) profiles. Testing is performed on the ground surface, allowing for less costly measurements than with traditional borehole methods. The basis of surface wave techniques is the dispersive characteristic of Rayleigh waves when traveling through a layered medium. Rayleigh wave velocity is determined by the material properties (primarily shear wave velocity, but also to a lesser degree compression wave velocity and material density) of the subsurface to a depth of approximately 1 to 2 wavelengths. As shown in the adjacent diagram, longer wavelengths penetrate deeper and their velocity is affected by the material properties at greater depth. Surface wave testing consists of measuring the surface wave dispersion curve at a site and modeling it to obtain the corresponding shear wave velocity profile.



Active Surface Wave Techniques

Active surface wave techniques measure surface waves generated by dynamic sources such as hammers, weight drops, electromechanical shakers, vibroseis and bulldozers. These techniques include the spectral analysis of surface waves (SASW) and multi-channel array surface wave (MASW) methods.



Hammer Energy Sources



Accelerated Weight Drop



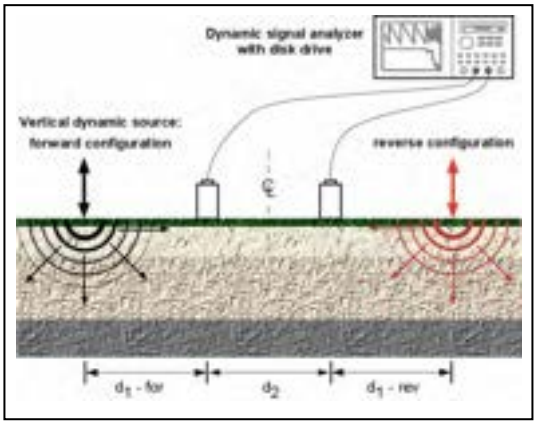
Electromechanical Shaker



Bulldozer Energy Source

1124 Olympic Drive, Corona, California 92881 ph. 951-549-1234 fx 951-549-1236 www.geovision.com

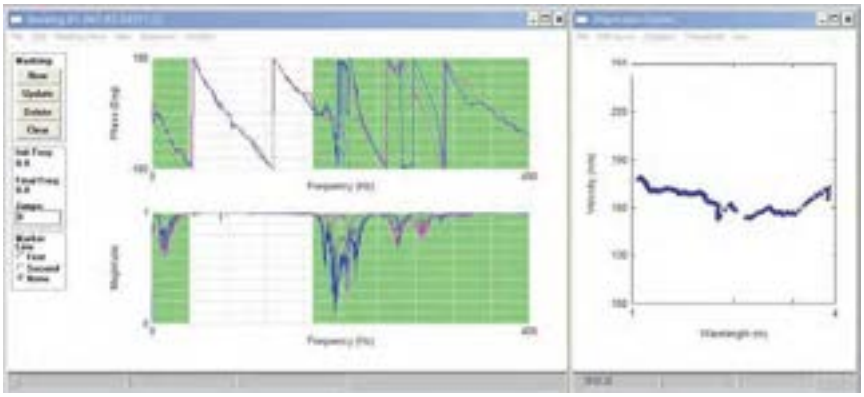
The SASW method is optimized for conducting V_S depth soundings. A dynamic source is used to generate surface waves of different wavelengths (or frequencies) which are monitored by two or more receivers at known offsets. An expanding receiver spread and optimized source-receiver geometry are used to minimize near field effects, body wave signal and attenuation. A dynamic signal analyzer is typically used to calculate the phase and coherence of the cross spectrum of the time history data collected at a pair of receivers. During data analysis, an interactive masking process is used to discard low quality data and to unwrap the phase spectrum, as shown in the figure below. The dispersion curve (Rayleigh wave phase velocity versus frequency or alternatively wavelength) is calculated from the unwrapped phase spectrum.



SASW Setup



HP Dynamic Signal Analyzer

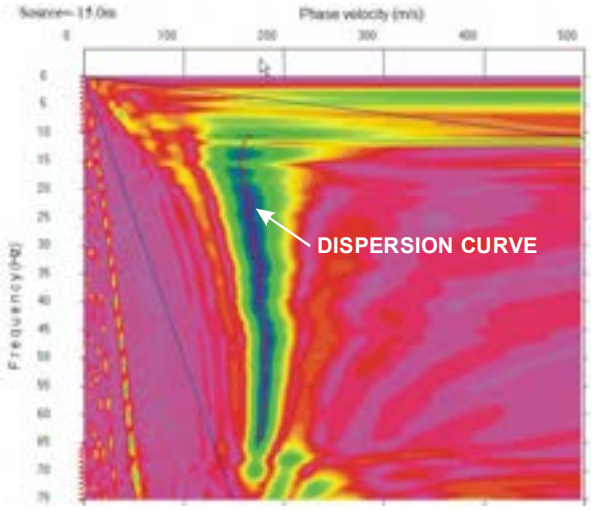


Masking of Wrapped Phase Spectrum and Resulting Dispersion Curve

The MASW field layout is similar to that of the seismic refraction technique. Twenty four, or more, geophones are laid out in a linear array with 1 to 2m spacing and connected to a multi-channel seismograph as shown below. This technique is ideally suited to 2D V_S imaging, with data collected in a roll-along manner similar to that of the seismic reflection technique. The source is offset at a predetermined distance from the near geophone usually determined by field testing. The Rayleigh wave dispersion curve is obtained by a wavefield transformation of the seismic record such as the f-k or τ-p transforms. These transforms are very effective at isolating surface wave energy from that of body waves. The dispersion curve is picked as the peak of the surface wave energy in slowness (or velocity) – frequency space as shown. One advantage of the MASW technique is that the wavefield transformation may not only identify the fundamental mode but also higher modes of surface waves. At some sites, particularly those with large velocity inversions, higher surface wave modes may contain more energy than the fundamental mode.



MASW Field Setup



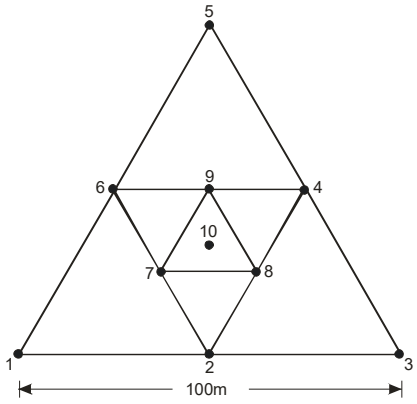
Wavefield Transform of MASW data

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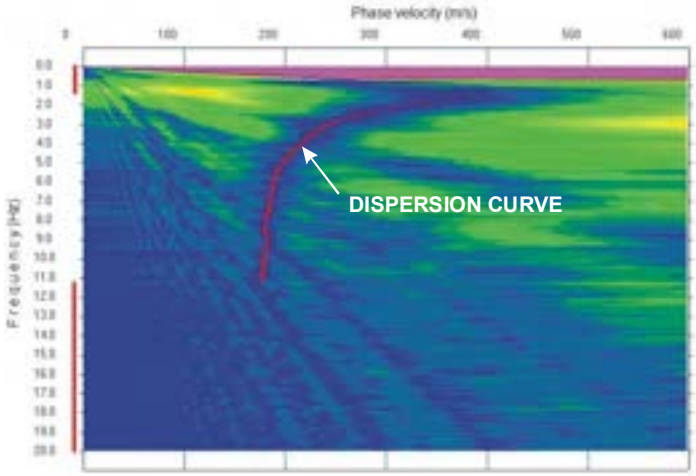
Passive Surface Wave Techniques

Passive surface wave techniques measure noise; surface waves from ocean wave activity, traffic, factories, etc. These techniques include the array microtremor and refraction microtremor (REMI) techniques.

The array microtremor technique typically uses 7 or more 4.5- or 1-Hz geophones arranged in a two-dimensional array. The most common arrays are the triangle, circle, semi-circle and "L" arrays. The triangle array, which consists of several embedded equilateral triangles, is often used as it provides good results with a relatively small number of geophones. With this array the outer side of the triangle should be at least as long as the desired depth of investigation. Typically, fifteen to twenty 30-second noise records are acquired for analysis. The spatial autocorrelation (SPAC) technique is one of several methods that can be used to estimate the Rayleigh wave dispersion curve. A first order Bessel function is fit to the SPAC function to determine the phase velocity for particular frequency. The image shown below shows the degree of fitness of the Bessel function to the SPAC function for a wide range of phase velocity and frequency. The dispersion curve, is the peak (best fit), as shown in the figure below.



Triangle Array Geometry

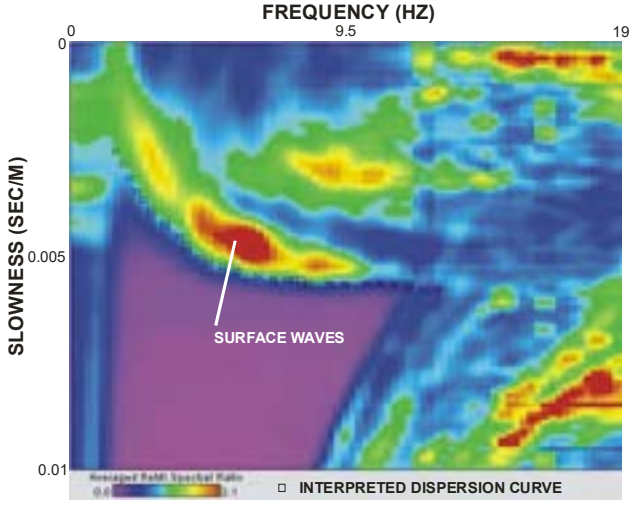


Dispersion Curve from Array Microtremor Measurements

The refraction microtremor (REMI) technique uses a field layout similar to the seismic refraction method (hence its name). Twenty-four, 4.5 Hz geophones are laid out in a linear array with a spacing of 6 to 8m and fifteen to twenty 30-second noise records are acquired. A slowness-frequency (p-f) wavefield transform is used to separate Rayleigh wave energy from that of other waves. Because the noise field can originate from any direction, the wavefield transform is conducted for multiple vectors through the geophone array, all of which are summed. The dispersion curve is defined as the lower envelope of the Rayleigh wave energy in p-f space. Because the lower envelope is picked rather than the energy peak (energy traveling along the profile is slower than that approaching from an angle), this technique may be somewhat more subjective than the others, particularly at low frequencies. The SPAC technique can also be used to extract the surface wave dispersion curve from linear array microtremor data providing there are omni-directional noise sources.



Refraction Microtremor Array Layout



Wavefield Transform of REMI Data

Depth of Investigation

Active surface wave investigations typically use various sized sledge hammers to image the shear wave velocity structure to depths of up to 15m. Weight drops and electromechanical shakers can often be used to image to depths of 30m. Bulldozers and vibroseis trucks can be used to image to depths as great as 100m. Passive surface wave techniques can often image shear wave velocity structure to depths of over 100m, given sufficient noise sources and space for the receiver array. Large passive arrays, utilizing long-period seismometers with GPS clocks have been used to image shear wave velocity structure to depths of several kilometers.

Combined Active and Passive Surface Wave Testing

The combined use of active and passive techniques may offer significant advantages on many investigations. It can be very costly to mobilize large energy sources for 30m/100ft active surface wave soundings. In urban environments, the combined use of active and passive surface wave techniques can image to these depths without the need for large energy sources. We have found that dispersion curves from active and passive surface wave techniques are generally in good agreement, making the combined use of the two techniques viable. It is not recommended that passive surface wave techniques be applied alone for UBC/IBC site classification investigations. Microtremor techniques do not generally characterize near surface velocity, which may have a significant impact of the average shear wave velocity of the upper 30m or 100ft and so should always be used in conjunction with SASW or MASW. An SASW sounding to a depth of 30m requires at least a 60m linear array. If sufficient space is not available for this, it may be possible to use a 45m triangle array on the site or place a 100-200m long REMI array along an adjacent sidewalk or an "L" array at an adjacent street intersection.



Microtremor Measurements along Sidewalk

Modeling

There are several options for interpreting surface wave dispersion curves, depending on the accuracy required in the shear wave velocity profile. A simple empirical analysis can be done to estimate the average shear wave velocity profile. For greater accuracy, forward modeling of fundamental-mode Rayleigh wave dispersion as well as full stress wave propagation can be performed using several software packages. A formal inversion scheme may also be used. With many of the analytical approaches, background information on the site can be incorporated into the model and the resolution of the final profile may be quantified.

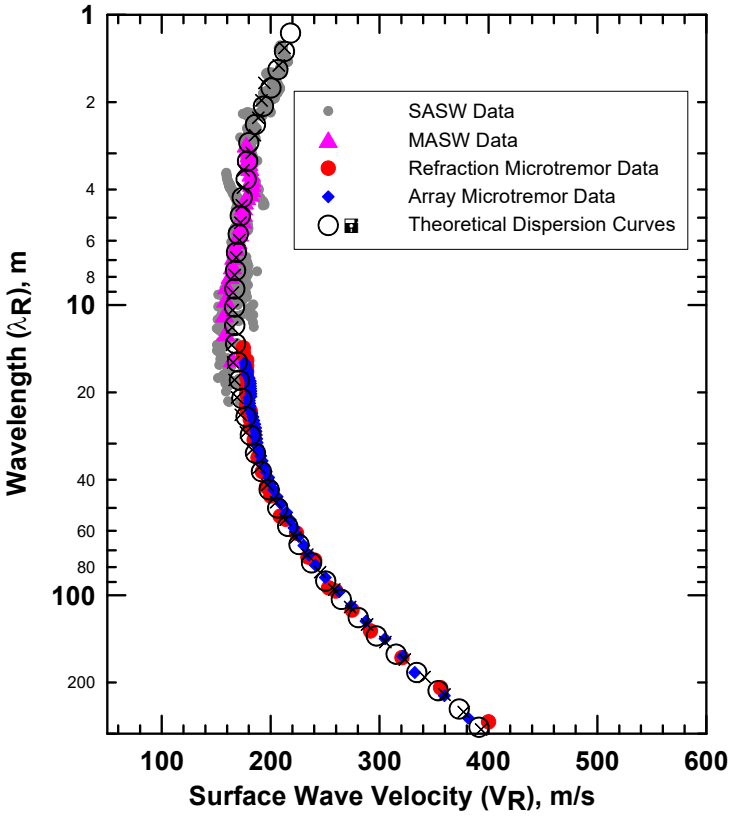
Applications

Active and passive surface wave testing can be used to obtain V_S profiles for:

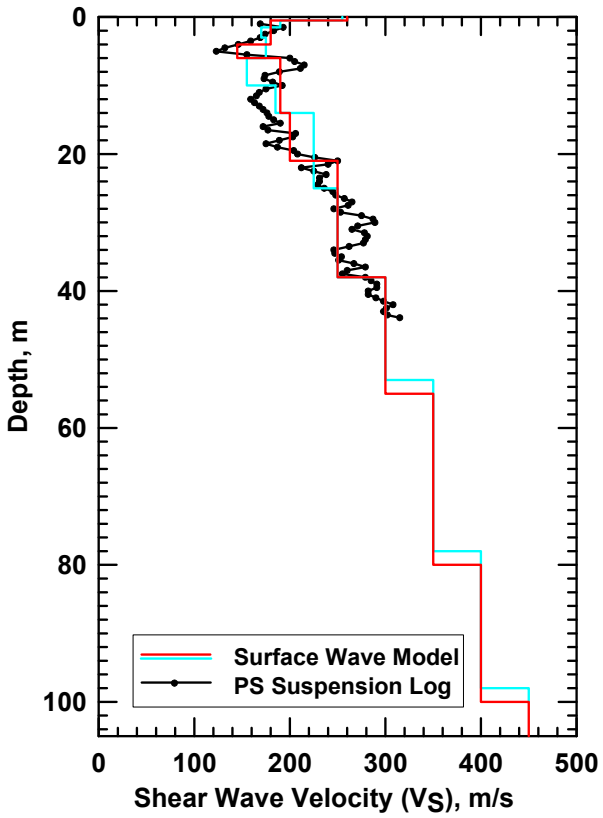
- UBC/IBC site classification for seismic design
- Earthquake site response
- Seismic microzonation
- Liquefaction analysis
- Soil compaction control
- Mapping subsurface stratigraphy
- Locating potentially weak zones in earthen embankments and levees

Case History

The figures below show the surface wave dispersion curves and alternative shear wave velocity models for a site in Los Angeles, California. All of the previous figures illustrating SASW, MASW, array and refraction microtremor techniques were from this site. The dispersion curves from all four methods are shown on the left along with the theoretical dispersion curves for alternative S-wave velocity versus depth models on the right. Conditions at this site were very poor for active surface wave techniques because of the presence of very low velocity hydraulic fill. In fact, with active surface wave techniques it was only possible to image to a depth of about 12.5m with energy sources typically capable of imaging to 30m. There is excellent agreement in the dispersion curves generated from all of the methods over the overlapping wavelength ranges. The minor differences probably result from variable velocity of the hydraulic fill within the sampling volume of the specific methods. Two Vs versus depth models were generated to illustrate the difficulty modeling the highly variable, near surface velocity structure evident in the PS log. The two surface wave models yielded similar values for the average shear-wave velocity of the upper 30m (V_S30), 201 and 202 m/s, illustrating that Vs30 is much more tightly constrained than the actual layer thicknesses and velocities in the models. V_S30 estimated from the PS log (194 m/s) is within 4% of that estimated from the two surface wave models (201 and 202 m/s). The small differences in V_S30 between the two methods may easily result from the different sampling regimes (borehole versus large area) rather than errors in either of the methods.



Field Data and Theoretical Dispersion Curve



V_S Model

In contrast to borehole measurements which are point estimates, surface wave testing is a global measurement, that is, a much larger volume of the subsurface is sampled. The resulting profile is representative of the subsurface properties averaged over distances of up to several hundred feet. Although surface wave techniques do not have the layer sensitivity or accuracy (velocity and layer thickness) of borehole techniques; the average velocity over a large depth interval (i.e. the average shear wave velocity of the upper 30m or 100ft) is very well constrained. Because surface wave methods are non-invasive and non-destructive, it is relatively easy to obtain the necessary permits for testing. At sites that are favorable for surface wave propagation, active and passive surface wave techniques allow appreciable cost and time savings.

HVSR METHOD

HORIZONTAL/VERTICAL SPECTRAL RATIO (HVSR) METHOD

Overview

The HVSR method is a single station passive seismic method for estimating the fundamental site period (frequency), which is related to the thickness and average shear (S) wave velocity of the sediments overlying bedrock. It should be noted that the HVSR frequency peak is typically very close to, but not always identical to, the fundamental site frequency. Passive seismic techniques involve the recording of ambient noise emanating from ocean wave activity, atmospheric conditions, wind effects, traffic, industrial activity, construction activities, etc., and collectively are referred to as microseisms. Typically, microseisms with frequencies below 1 Hz have natural origins, whereas those with frequencies above 1 Hz are largely due to human activities. The HVSR technique is most often utilized as part of seismic microzonation studies of sedimentary basin, but is recently finding use in hydrogeologic studies to identify potential drill sites with bedrock at the greatest depth.



Tromino ENGR used for HVSR measurements in shallow basins

Procedure

The HVSR method uses a 3-component seismometer to record ambient noise for a period of time between 15 minutes and several hours depending on the estimated thickness of the sediments and ambient noise conditions. The ratio of the Fourier amplitude spectra of the horizontal and vertical components is calculated to determine the frequency of the maximum HVSR response, commonly accepted as an approximation of the fundamental frequency (f_0) of the sediment column overlying bedrock.

There are several options for interpreting HVSR data, depending upon the objectives of the investigation, including: joint inversion of the HVSR curve or peak frequency with surface wave dispersion curves, quarter-wavelength correlation, or simple empirical analysis using HVSR data collected at locations with known bedrock depth.



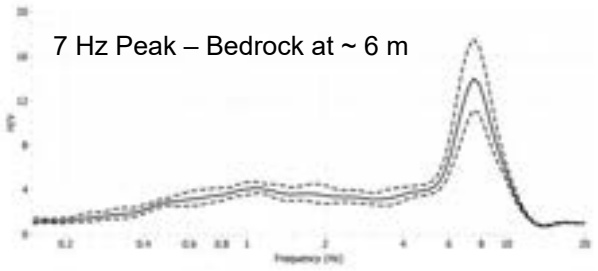
Trillium Compact 120 second seismometer used for HVSR measurements in deep basins

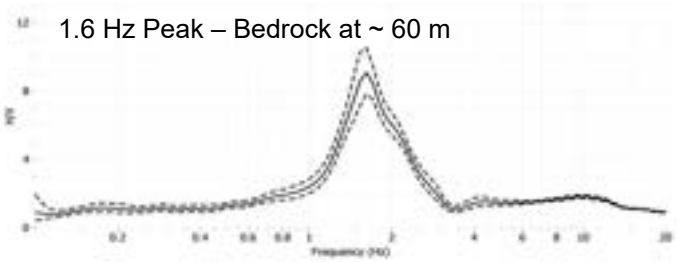
The quarter-wavelength approximation is:

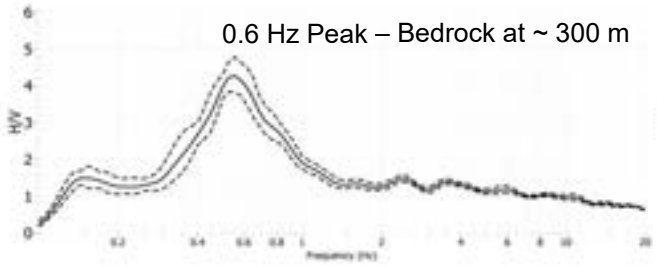
$$f_0 = \frac{\overline{V}_S}{4z}$$

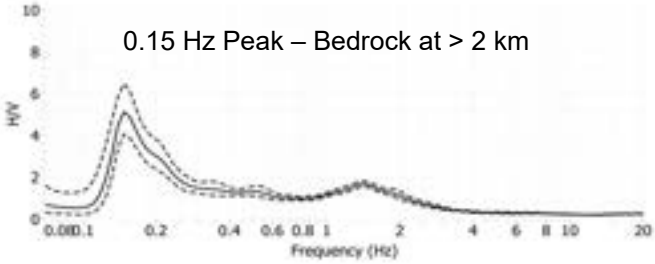
where f_0 is the site fundamental frequency, $\overline{V}_S$ is the average shear-wave velocity of the soil column overlying bedrock at depth *z*. *This relationship* can be used to estimate the average shear wave velocity profile of the sediments when depth to bedrock is known or vice versa. As evident in this relationship, the fundamental site frequency is inversely proportional to bedrock depth; therefore, shallow bedrock will be associated with a high frequency peak and vice versa. If active and passive surface wave soundings are conducted in the deeper portion of sedimentary basins, it may be possible to develop an average S-wave velocity versus depth profile for the basin and use this along with the HVSR frequency peak to estimate bedrock depth. Alternatively, HVSR measurements can be made at locations with known depth to bedrock and a correlation between HVSR peak frequency and bedrock depth developed.

The figures below show HVSR data collected at sites with different approximate basement depths. Sites with shallow rock will have HVSR peaks at several Hz, while deep sedimentary basins will have HVSR peaks at a fraction of a hertz.

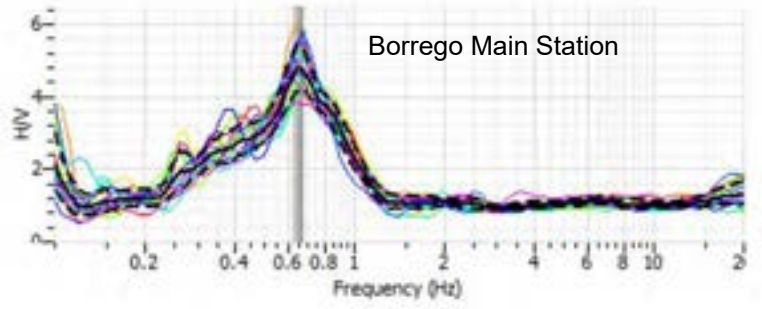


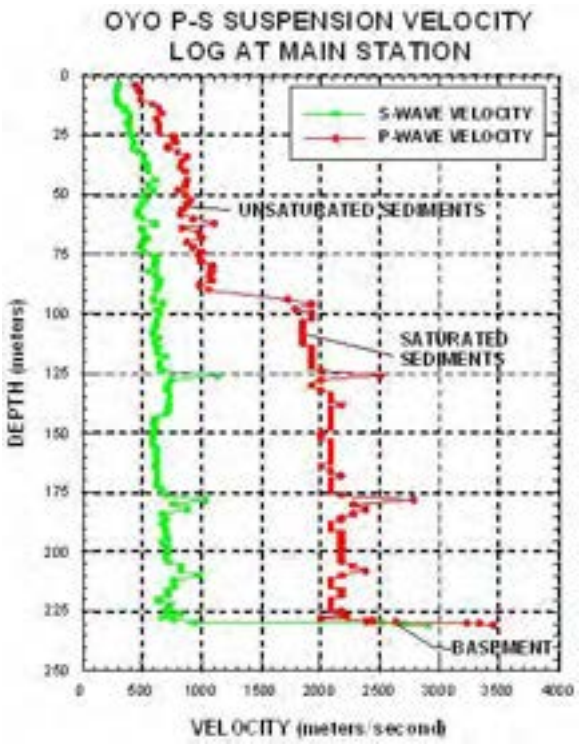






The figures below demonstrate the effectiveness of the quarter-wavelength approximation. At this site near Borrego Springs, California, a PS Suspension log was acquired in a borehole that encountered bedrock at a depth of 229 m. The PS Suspension log indicates that the average S-wave velocity of the sediments overlying bedrock is about 572 m/s. The HVSR peak at this site is 0.65 Hz which, combined with the average velocity of the sediments, indicates that bedrock is about 220 m deep, within 4% of that encountered in the borehole.





HVSR testing can be used for:

- Seismic microzonation studies.
- Confirming that the velocity structure is 1-D beneath large active/passive surface wave arrays.
- Reduce non-uniqueness in S-wave velocity models developed from surface wave testing through joint inversion.
- Estimate relative depth to bedrock for hydrogeologic studies.

APPENDIX E

MASW GEOPHYSICAL SURVEY INVESTIGATION REPORT (NORCAL GEOPHYSICAL CONSULTANTS, INC.)

DRAFT

Geophysical Report

Geophysical Investigation:
SFMTA Potrero Facility Rebuild
South San Francisco, California

April 28, 2023
NORCAL JOB NO. NS225145

Prepared for:

LANGAN

Prepared by:

NORCAL GEOPHYSICAL CONSULTANTS INC.
A Terracon COMPANY

NORCAL Geophysical Consultants, Inc. 321A Blodgett Street Cotati, California 94931
P (707) 796-7170 F (707) 796-7175 norcalgeophysical.com

NORCAL GEOPHYSICAL CONSULTANTS INC.
A terracon COMPANY

April 28, 2023

Langan Engineering and Environmental Services, Inc.
3320 Data Drive, Suite 350
Rancho Cordova, California 95680-7352

Subject: Geophysical Investigation:
SFMTA Potrero Facility Rebuild
San Francisco, California
NORCAL Project No. NS225145

Attention: Ms. Jenna Fontaine

Dear Ms. Fontaine,

This report presents the findings of a geophysical investigation performed by NORCAL Geophysical Consultants, Inc., a Terracon company (NORCAL), for Langan Engineering and Environmental Services, Inc. (Langan). The investigation was performed for the SFMTA Potrero Facility Rebuild project located along Hampshire Street between 17th and Mariposa Streets in San Francisco, California. The investigation consisted of the seismic refraction (SR) & multichannel analysis of surface waves (MASW) geophysical methods.

This geophysical investigation is supplemental to a geotechnical investigation currently underway by Langan. The work was authorized under a Langan Subcontractor Authorization for Langan Project No. 770691710 dated March 31, 2023. NORCAL Professional Geophysicist David T. Hagin (CA PGp No. 1033) and Staff Geophysicist Matthew N. LaRiviere conducted the survey on March 30, 2023.

The scope of NORCAL's services for this project consisted of using geophysical methods to characterize the subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the standard of care ordinarily exercised by members of the profession currently employing similar methods. No warranty, with respect to the performance of services or products delivered under this agreement, express or implied, is made by NORCAL.

NORCAL
GEOPHYSICAL CONSULTANTS INC.
A Terracon COMPANY

We appreciate having the opportunity to provide our services for this project. If you have any questions or require additional geophysical services, please do not hesitate to call on us.

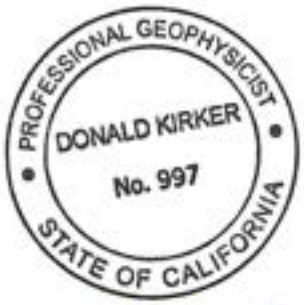
Sincerely,
NORCAL Geophysical Consultants, Inc.

David T. Hagin
California Professional Geophysicist
PGp 1033



4-28-2023

Donald J. Kirker, Reviewer
California Professional Geophysicist
PGp No. 997



4-28-2023

1.0 INTRODUCTION

A rebuild is planned for the Potrero SFMTA facility in South San Francisco. "*The Potrero Yard Modernization Project will replace an obsolete, century-old bus yard with a modern, three-story, efficient bus maintenance and storage facility, equipped to serve the SFMTA's growing fleet as it transitions to battery electric buses" (sfmta.com).* A geotechnical investigation is currently underway by Langan for this project. They will use the information from this geophysical survey to aid in the planning and design for foundations and other structural elements of the planned improvements.

The geophysical investigation comprised two methods: seismic refraction (SR) and multichannel analysis of surface waves (MASW) surveys. The SR method provides p-wave velocity values that may aid in determining the consolidation, cementation, or hardness of the underlying lithologic materials. The MASW method produces s-wave velocity values that can provide information regarding the relative strength of the underlying geology, which can be used to assess the seismic site class (Vs30).

2.0 SITE CONDITIONS

The following description of site conditions is derived from our observations during the survey and a review of publicly available aerial photographs, geologic and topographic maps.

Item	Description
Site Information	The survey site is located along Hampshire Street between 17th and Mariposa Streets in San Francisco, California. The approximate geographic coordinates of the center of the site are: (37°45'49.9"N 122°24'27.0"W).
Survey Site	The seismic surveys were performed on an asphalt-covered, street-side parking area to the east of the current structure.
Existing Topography	Based on our Trimble Geo7X GPS, Google Earth and site observations, the site consists of relatively flat terrain that slopes very slightly southward. Surface elevations range from about 50- to 72-ft (NAVD88).
Site Geology	Available geologic maps (USGS OFR 2006-1037; CGS 2002, 2003) indicate that the site geology is near the mapped border of Quaternary age sand deposits to the southwest and Mesozoic ultramafic rocks to the northeast.

3.0 SCOPE OF WORK

Our scope of work included acquiring seismic data consisting of both SR to measure primary compressional-wave (p-wave), and MASW to quantify secondary shear-wave (s-wave) values. Data acquisition consisted of one SR line, designated as Line SR-1, and two MASW soundings, denoted MASW-1 and MASW-2.

Aerial photographic images showing the site vicinity and the locations of the seismic surveys are provided on **Plate 1 – Site Location Map**, as detailed in the legend. To provide documentation of our investigation, this geophysical report includes the site location map, details of our data acquisition and processing, as well as the resulting SR profile and MASW shear-wave models, presented in both tabular and graphic form.

4.0 SEISMIC REFRACTION SURVEY

4.1 SR SURVEY METHOD

The SR method is designed to measure subsurface variations in the compressional (P-) wave velocities, which will be denoted herein as "Vp." Variations in Vp can be indicative of variations in the density and elastic properties of subsurface materials. The Vp values can typically be interpreted to differentiate between bedrock and overburden, as well as to evaluate the underlying bedrock. The SR method provides both vertical and lateral variations in the Vp of subsurface materials. These measurements can then be used to produce a two-dimensional (2D) cross-section (profile) illustrating variations in Vp versus depth and distance beneath the seismic line.

Typically, Vp is dependent on physical properties such as density, hardness, compaction, and induration. However, other factors such as bedding, fracturing and saturation also affect Vp. In general, the Vp of weathered rock and consolidated or cemented sedimentary deposits are higher than those of unconsolidated sediments or fill material. Within rock, higher Vp values typically correspond with harder, less weathered and/or fractured rock. Therefore, the configuration of Vp values may aid in determining the thickness of sedimentary and soil layers (overburden), and the character of the underlying bedrock.

Detailed descriptions of the SR methodology, the instrumentation we used, our data acquisition, analysis and interpretation procedures as well as the general limitations of the method are provided in **Appendix A – Seismic Refraction Survey**.

4.2 SR PROFILE

The results of the SR survey are illustrated by the color contoured seismic velocity cross-section (profile) shown on **Plate 2 – Seismic Refraction Profile**. The vertical axis represents elevation (NAVD88), and the horizontal axis represents the survey stationing established for the SR line, with the zero-value at the northwestern end of the line. The unit of measure for both axes is the US Survey Foot. The solid black line along the top of the contoured portion of the profile represents the ground surface. The maximum depth of investigation is determined by the greatest shot-to-receiver distance and is estimated to be 50-ft below ground surface.

4.3 SEISMIC P-WAVE VELOCITY VALUES

Seismic p-wave velocity (Vp) is represented by the labeled contours and the color shading between contours and is presented in feet per second (ft/sec). The relationship between color and Vp is specified by the color scale shown below each profile. The color scales are identical (normalized) for ease of comparison.

The Vp measured by the seismic refraction survey range from slightly less than 1,000 ft/sec near the surface to greater than 10,000 ft/sec at depth. This velocity range can be differentiated into three sub-ranges which we define herein as low, moderate and high.

- *Low Vp* range from approximately 1,000 to 4,500 ft/sec and are represented by tan to yellow shading. Vp in this range typically represent unsaturated surficial soils, poorly consolidated sedimentary deposits or fill.

- *Moderate Vp* range from 4,500 to 6,500 ft/sec and are represented by shades of green to blue. Vp in this range typically represent more consolidated, cemented or saturated sediments and/or weathered rock.

- *High Vp* range from 6,500 to over 10,000 ft/sec and are represented by varying shades of maroon, typically representing rock with varying degrees of weathering. As Vp increases, weathering and/or fracturing typically decrease.

4.4 OBSERVATIONS

The distribution of Vp values allows for a general interpretation of thickness of soils and sediments and depth-to-rock, drawn from the Vp interpretations presented in Section 4.3.

- The profile for Line SR-1 shows high Vp (maroon) across the bottom of the profile, dropping in elevation toward the southwest, likely indicating the presence of hard rock. The high Vp are near 20-ft deep at the northwest end of the profile and drop to about 45-ft at the southwest end.

- Moderate Vp values (blue, green) are moderately thin on the northern end of the profile and thicken considerably toward the south, varying from about 15- to 30-ft thick. These values may represent the dune sands overlying the ultramafic rock. The sands are mapped toward the southwest, as indicated on the geologic map (CGS 2002, 2003).

- The upper portion of the profile shows 5- to 10-ft of surficial low Vp (tan, yellow), likely representing a layer of soils and/or poorly consolidated sedimentary deposits.

5.0 MASW SURVEY

5.1 MASW SURVEY METHOD

The Seismic Multichannel Analysis of Surface Waves (MASW) sounding survey measures the shear-wave (Vs) velocities of the subsurface as a function of depth. The method used for this survey is referred to as a sounding, producing one-dimensional (1D) data that are presented in both tabular and graphic form as a layered shear wave model. The location of each sounding is the center of the geophone array. Descriptions of the MASW methodology, our data acquisition and analysis procedures, and the instrumentation we employed are provided in **Appendix B – MASW Sounding Survey**.

The standard method of reporting MASW data is to consider the location of the 1D velocity vs. depth model as the center point of the MASW array. However, this does not mean that the measured velocity values represent materials solely beneath that location. In fact, the subsurface conditions underlying the entire length of the array, and for several tens of feet to either side, contribute to the measured velocity values.

5.2 MASW TABLES AND STEP-CHART GRAPHS

The results of the MASW survey are listed in the tables presented in Section 5.3. The left columns of each table contain the depth ranges for each layer (feet below ground surface) and the right columns comprise the associated Vs values in feet per second (ft/sec). The results are also presented graphically in ft/sec by the step charts shown on **Plates 3 and 4 – MASW Soundings**.

The maximum depth of investigation is determined by the longest wavelength (lowest frequency) measured by the survey, which is a function of the site geology, the geophone spacing and the array length. The maximum depth of exploration for each sounding is approximated as 100-ft below ground surface. Note that although Vs generally increase with depth, both data sets indicate velocity inversions (lower Vs beneath higher Vs).

5.3 SEISMIC S-WAVE VELOCITY VALUES

The s-wave layered models for MASW-1 and MASW-2 are presented by the following tables:

MASW-1: Seismic S-Wave Velocity vs Depth

DEPTH RANGE (FT)	S-WAVE VELOCITY (FT/SEC)
0 - 3	2,380
3 - 7	2,680
7 - 12	2,940
12 - 18	2,210
18 - 26	1,240
26 - 36	2,080
36 - 48	3,910
48 - 64	4,200
64 - 83	2,060
83 - 100	3,690

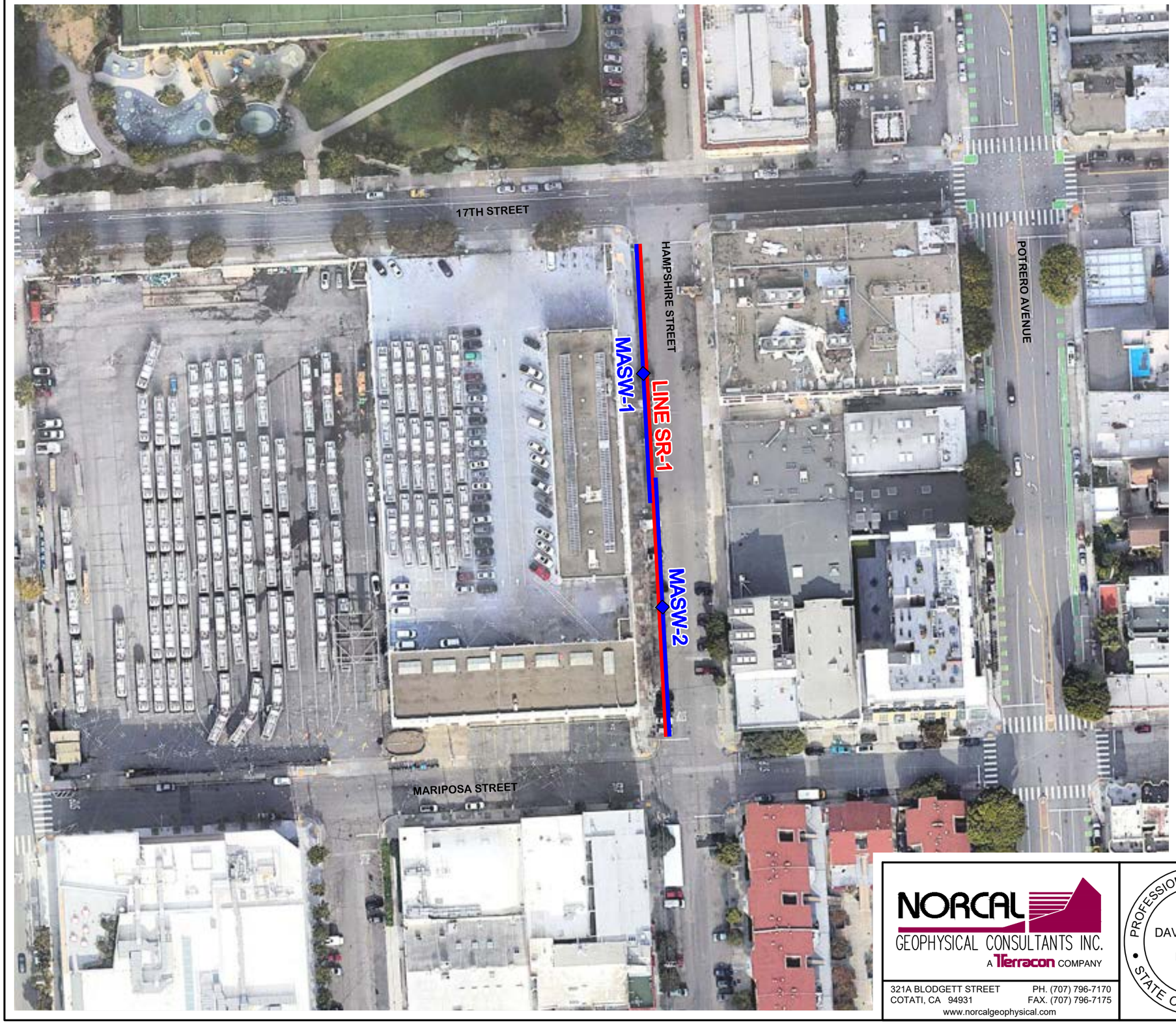
MASW-2: Seismic S-Wave Velocity vs Depth

DEPTH RANGE (FT)	S-WAVE VELOCITY (FT/SEC)
0 - 2	1,910
2 - 6	2,050
6 - 9	2,140
9 - 14	2,100
14 - 20	1,790
20 - 28	1,320
28 - 37	1,600
37 - 49	2,900
49 - 63	3,720
63 - 100	5,360

The measured Vs values for both soundings range from a low of 1,240 ft/sec to a maximum of 5,360 ft/sec. It is possible that some of the measured shallow layer velocities may be increased due to the proximity of building foundations or other man-made structures.

6.0 DISCUSSION

The SR profile appears to generally agree with the general geology (USGS), as the interpreted rock appears to decrease in depth towards the north where ultramafic rock is mapped. The SR and MASW data sets show good correlation to one another within the range defined on the SR profile.





VICINITY MAP

N

SCALE
0 40 80 160
(1 inch = 80 feet)

LEGEND

	SEISMIC REFRACTION LINE
	MASW SOUNDING LOCATION
	MASW SOUNDING ARRAY

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SITE LOCATION MAP
SEISMIC INVESTIGATION
SFMTA POTRERO FACILITY REBUILD

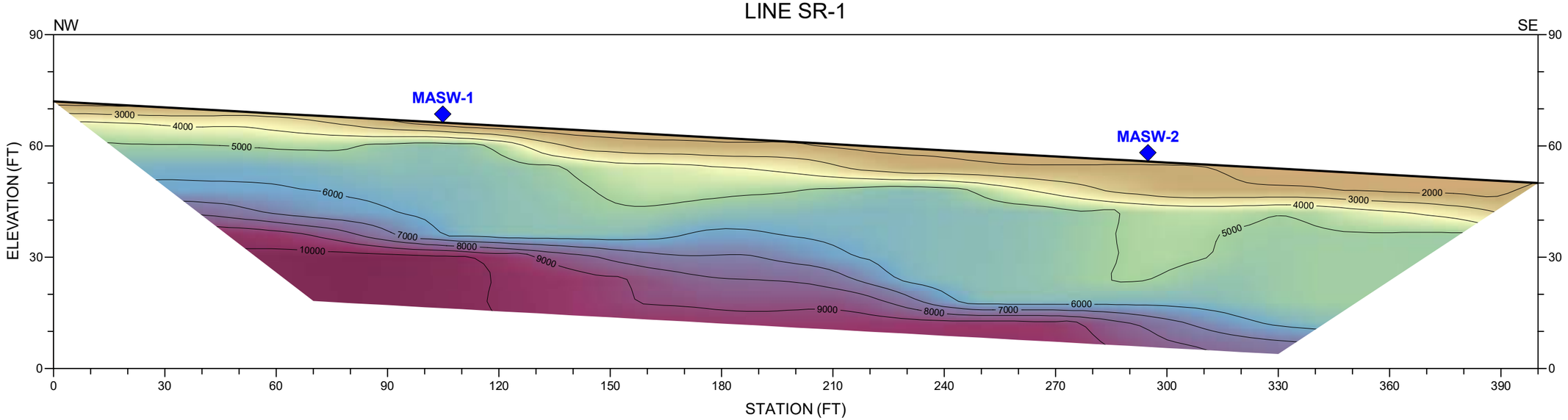
LOCATION: HAMPSHIRE STREET, SAN FRANCISCO, CALIFORNIA

CLIENT: LANGAN

JOB #. NS225145	DATE: APRIL 2023	PLATE 1
DRAWN BY: H.PHILSON	APPROVED BY: DTH	

4/27/2023

LINE SR-1



SEISMIC P-WAVE VELOCITY (FT/SEC)

1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

LEGEND	
◆	MASW SOUNDING LOCATION

SCALE

0 30 60

(1 inch = 30 feet)

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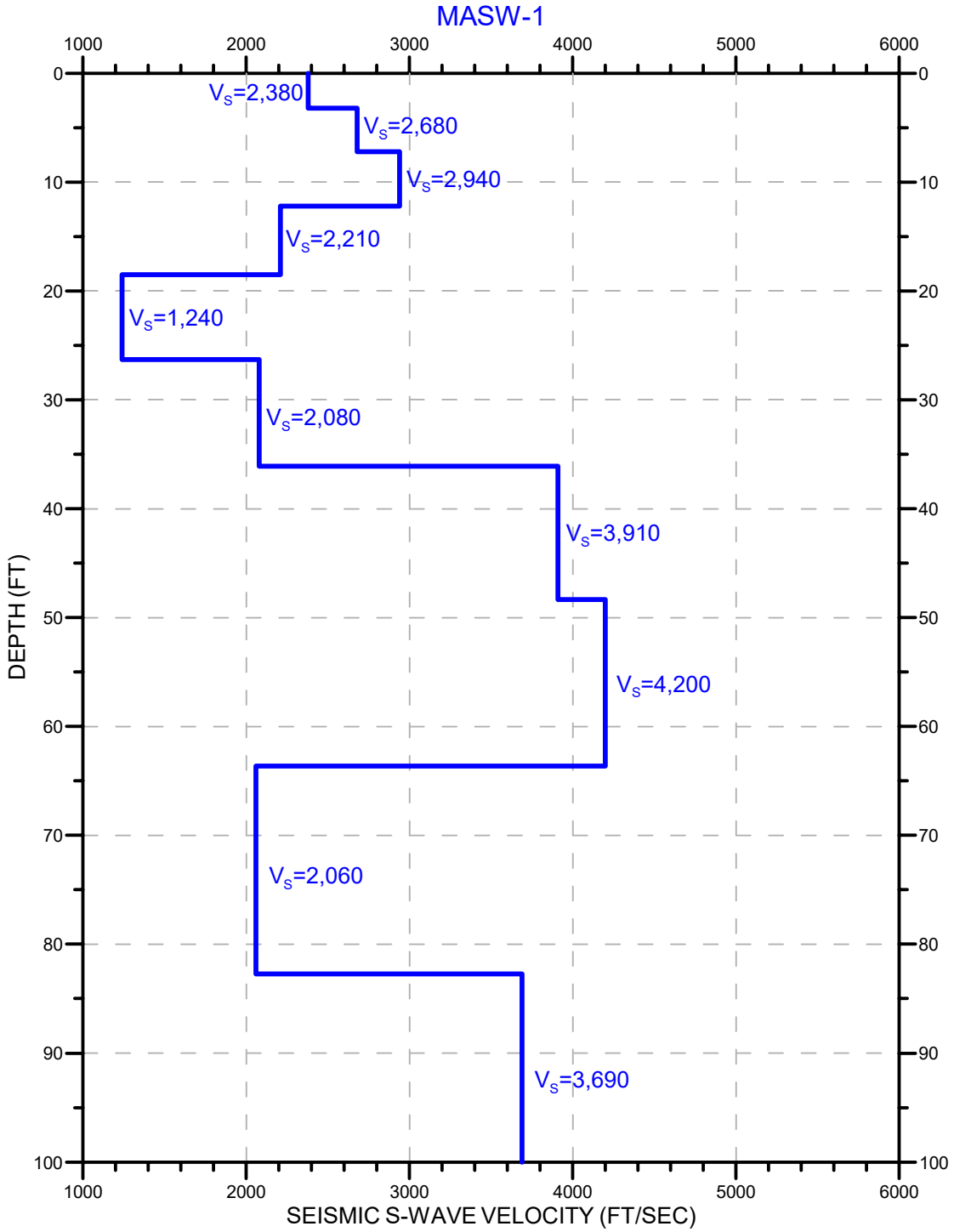
SEISMIC REFRACTION PROFILE
LINE SR-1
SFMTA POTRERO FACILITY REBUILD

LOCATION: HAMPSHIRE STREET, SAN FRANCISCO, CALIFORNIA

CLIENT: LANGAN

JOB #: NS225145	DATE: APRIL 2023	PLATE
DRAWN BY: H.PHILSON	APPROVED BY: DTH	2

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LEGEND	
———	SEISMIC S-WAVE VELOCITY

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MASW SOUNDING
MASW-1
SFMTA POTRERO FACILITY REBUILD

LOCATION: HAMPSHIRE STREET, SAN FRANCISCO, CALIFORNIA

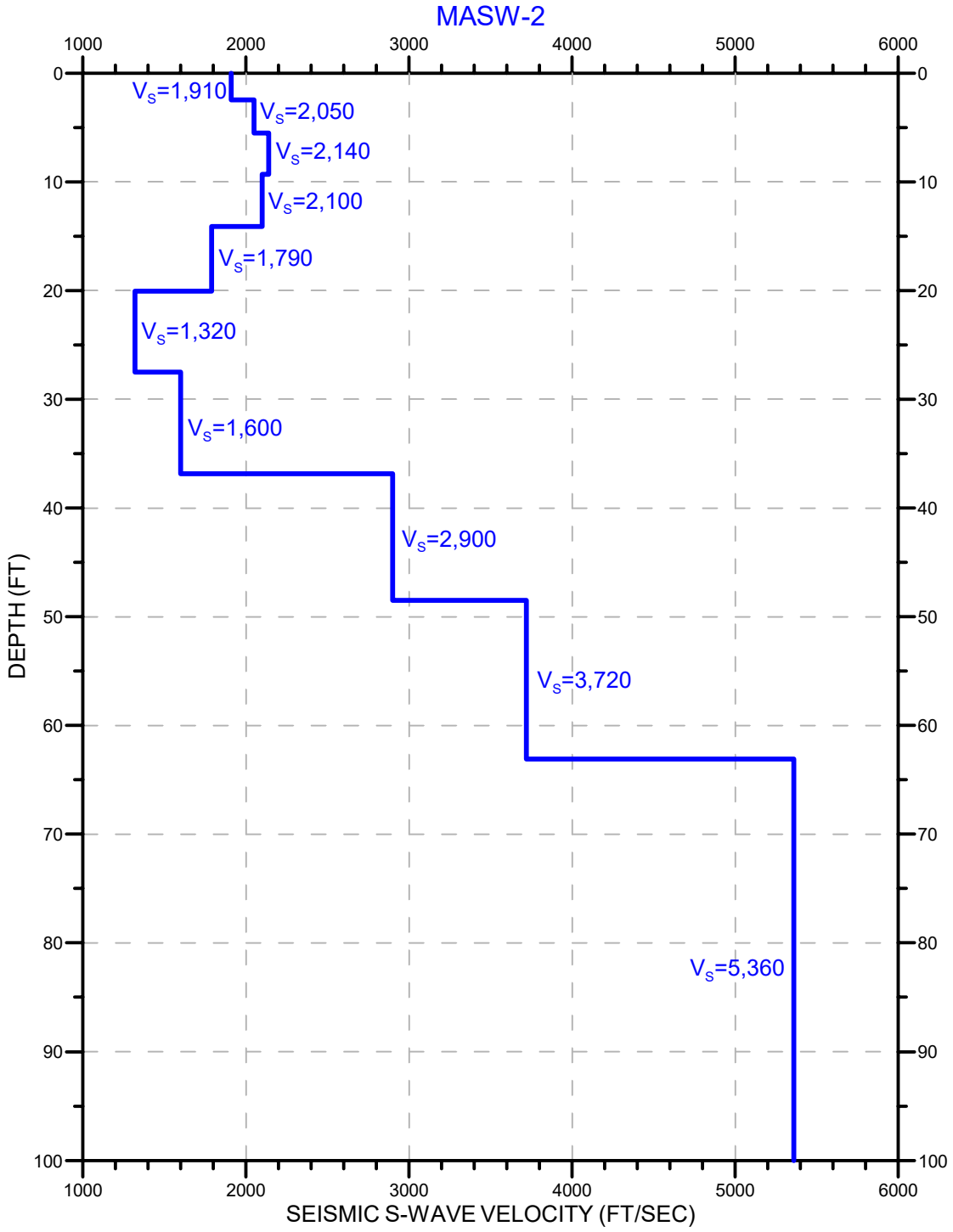
CLIENT: LANGAN

JOB #: NS225145 | DATE: APRIL 2023

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PLATE 3



LEGEND	
———	SEISMIC S-WAVE VELOCITY

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MASW SOUNDING
MASW-2
SFMTA POTRERO FACILITY REBUILD

LOCATION: HAMPSHIRE STREET, SAN FRANCISCO, CALIFORNIA

CLIENT: LANGAN

JOB #: NS225145	DATE: APRIL 2023
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PLATE 4

APPENDIX A:

Seismic Refraction Survey

APPENDIX A:
Seismic Refraction Survey

1.0 METHODOLOGY

The seismic refraction method provides information regarding the seismic velocity structure of the subsurface. An impulsive (mechanical or explosive) energy source is used to produce compressional (p-) wave seismic energy at the surface. The p-waves propagate into the earth and are refracted along interfaces caused by an increase in velocity. A portion of the p-wave energy is typically refracted back to the surface where it is detected by sensors (geophones) that are coupled to the ground surface in a collinear array (spread). The detected signals are recorded on a multi-channel seismograph and are analyzed to determine the shot point-to-geophone travel times. These data can be used along with the corresponding shot point-to-geophone distances and elevation data to determine the depth, thickness, and velocity of subsurface seismic layers.

2.0 INSTRUMENTATION

The seismic waveforms produced at each shot point were recorded using a Geometrics ***Geode*** 24-channel engineering distributed array seismograph, as pictured in Figure 1, and ***RT Clark*** geophones with a natural frequency of 4.5 Hz. The geophones were coupled to the ground surface by a metal spike affixed to the bottom of each geophone case. Seismic energy was produced at each shot point by multiple impacts with a 16-pound sledgehammer against a metal strike plate placed on the ground surface. The seismic waveforms were digitized, processed, and amplified by the Geode, transmitted via a ruggedized Ethernet cable to a field computer and algebraically summed (stacked) until sufficient signal to noise ratio was achieved. The data were displayed on the computer's LCD screen in the form of seismograms, analyzed for quality assurance and archived for subsequent processing. These images were subsequently used to determine the time required for P-waves to travel from each shot point to each geophone in the array (spread).



Figure 1: *Geometrics Geode 24-channel engineering distributed array seismograph.*

3.0 DATA ACQUISITION

We collected SR data along a single line, designated as Line SR-1, as described in the main body of the report. The line location is shown by the red line on the site location map (Plate 1). Langan personnel determined the location and orientation of the SR line. Data were acquired using arrays of 24 geophones with 10-ft spacing and 5 shot-points at approximately 60-ft intervals, as shown in Figure 2. Shot-points were placed off each end of the geophone arrays as well as distributed equally within each array, yielding a 250-ft length for each array. Two overlapping arrays were acquired to reach the 400-ft line length required. The maximum depth of investigation is determined by the greatest shot-to-receiver distance and is estimated to be 50-ft.

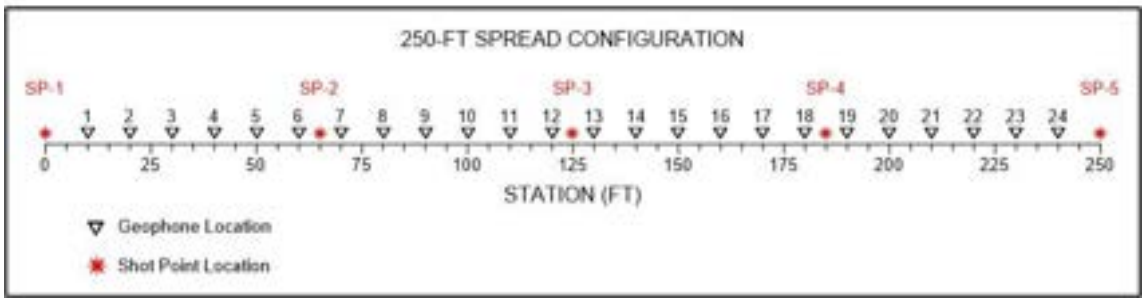


Figure 2: *SR Array configuration.*

4.0 DATA ANALYSIS

The seismic refraction data were processed using the software package ***SeisImager,*** written by Oyo Corporation (Japan) and distributed by Geometrics Inc. This package consists of two programs titled ***Pickwin,*** Version 5.1.1.2 (2013) and ***Plotrefa*****,** Version 3.0.0.6 (2014). For each seismic line we used ***Pickwin*** to view the seismic records and identify first arriving P-wave energy at each geophone and to determine the shot point to geophone travel time associated with each arrival. We then used ***Plotrefa*** to assign elevations to each geophone and to plot the shot point to geophone travel times versus their distance (Station) along the line. A sample Time versus Depth (T-D) graph is shown in Figure 3.

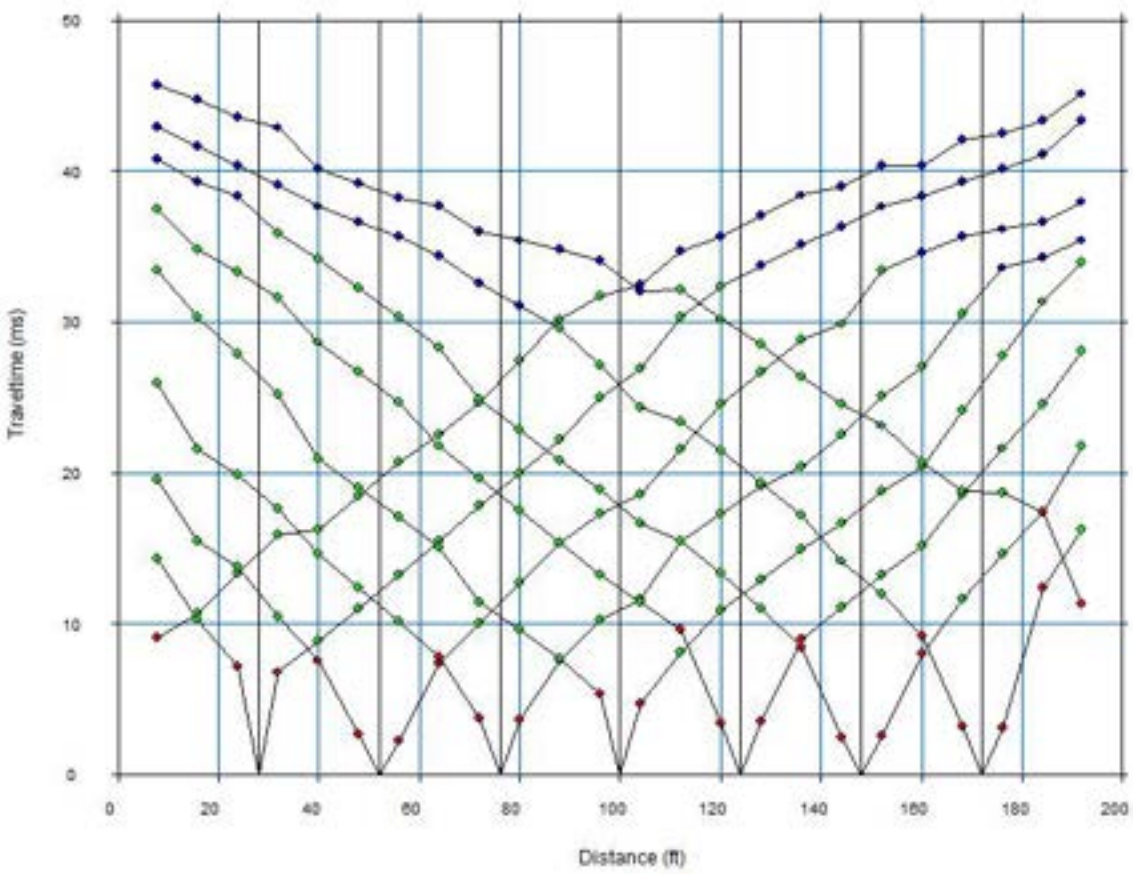


Figure 3: *Sample SR Time-Distance Graph. Red circles represent layer 1 (V1), green circles represent V2 and blue circles represent V3.*

After examining the T-D graph we assigned velocity layers (1-3) to each travel time and then computed a 2D model using ***Plotrefa's*** time-term routine. This resulted in a 2D layered cross-section (profile) illustrating seismic velocity versus depth. A sample 2D time-term model is shown in Figure 4.

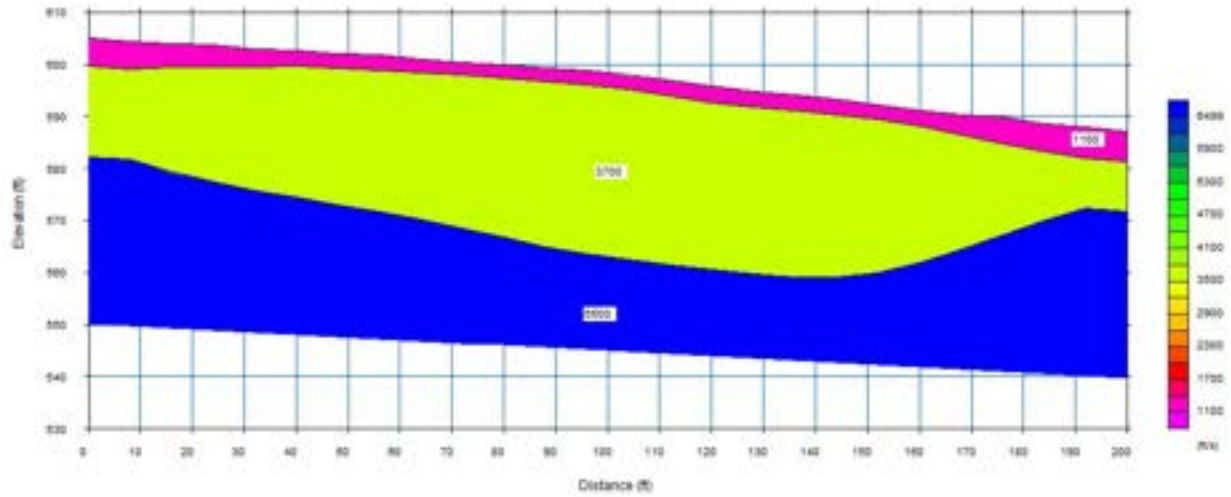


Figure 4: *Sample Time-Term Seismic Velocity Model. Velocities are labeled and indicated by the color bar on the right.*

Finally, we used the time term model as input to ***Plotrefa's*** tomographic routine. This routine divided the input model into cells according to the geophone spacing and depth range and assigned a velocity to each cell. It then used a ray-tracing routine to compute synthetic travel times through the model from each shot point to every geophone. The synthetic travel times were compared with the observed travel times to determine the goodness of fit. If the fit was not within certain assigned parameters, the program then adjusted the velocity in each cell and reran the ray tracing. This procedure was repeated through as many as 20 iterations in order to achieve the optimum fit between observed and synthetic travel times. A sample tomographic model is shown in Figure 5.

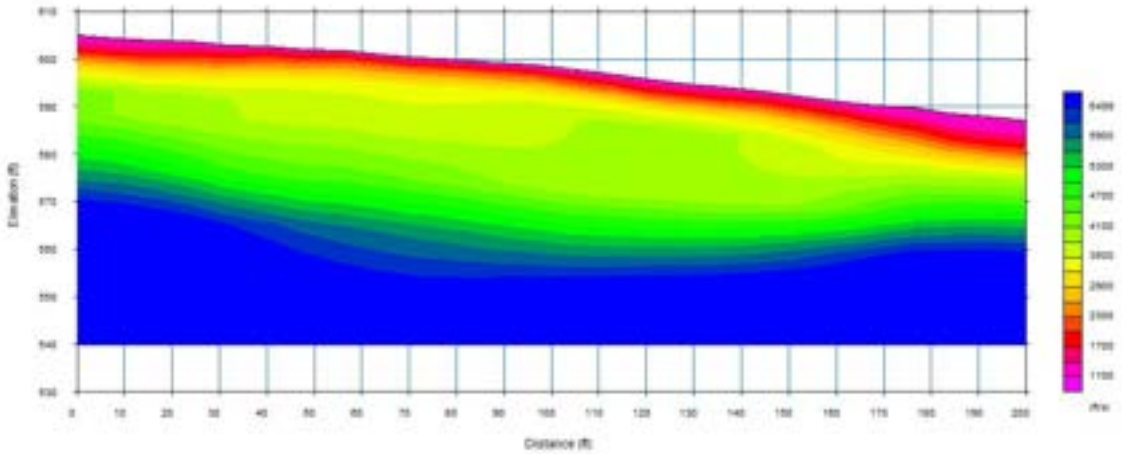


Figure 5: *Sample tomographic Inverted Seismic Velocity Model. Velocities indicated by color bar on right.*

Once the tomographic processing was complete, we used the computer program ***Surfer 21.2*** by Golden Software to construct a color contoured 2D cross-section (profile) illustrating the results for each seismic line.

5.0 INTERPRETATION

The SR profiles described above are models of the subsurface based on P-wave velocities. How these velocities and their subsurface distribution relate to geology is a matter of interpretation. This interpretation can be based on experience and a general knowledge of the local geology. However, the best results are achieved when the models can be correlated with subsurface information provided by other means such as onsite observations, borehole geological and/or geophysical logs, trench logs or projections based on mapped surface geology. This type of information is referred to as “ground truth”.

In any case, the resulting seismic velocity profile represents a model of the subsurface that must be interpreted by the best means available. Thus, the interpreted profile is conceptual in nature, and is not expected to represent an exact depiction of the subsurface.

6.0 LIMITATIONS

Based on the physical properties of refraction (Snell’s Law), in order for a seismic wave to be refracted back toward the surface, the seismic velocity of the upper layer must be less than the velocity of the lower layer. When higher velocities overlie lower velocities, often referred to as a velocity inversion, the seismic energy will be refracted downward and the lower layer will not be detected at the surface. As a result, the calculated depths of any deeper higher velocity layers may be over-estimated. Furthermore, some layers may be truncated or too thin to detect. These are referred to as “hidden layers”.

If the seismic source used for the survey does not produce sufficient energy to propagate through the entire spread at detectable levels, the first arriving P-waves at each geophone may not be visible on the seismic records. Additionally, extraneous seismic energy sources such as wind, traffic or nearby machinery may create “noise” on the recorded waveforms that may mask the first arrivals.

Another common external noise source is overhead power lines. If the cable is laid out parallel to the lines electrical noise may be induced in the cable. Possible internal noise sources may be faulty geophone connections due to dirt or moisture or use of an unsuppressed power supply.

In noisy conditions many “stacks” (multiple shots) may be necessary to achieve an acceptable signal-to-noise ratio. Stacking consists of superposition of waveforms such that the stacked shot energy builds with successive shots, whereas the noise tends to cancel itself out due to its random nature. In extremely noisy conditions it may not be possible to achieve an acceptable signal-to-noise ratio for the greatest shot-to-receiver distance, possibly reducing the maximum depth of investigation.

Finally, seismic refraction processing algorithms are based on the assumption that the seismic velocity layers are isotropic. That is, that the velocity is uniform within the length and breadth of each layer. Another assumption is that the velocity distribution does not change in a direction transverse to the seismic line. In other words, that there is true 2D symmetry. If these conditions are not met, the actual subsurface conditions will vary from those represented by the seismic model.

APPENDIX B:

MASW Sounding Survey

APPENDIX B:
MASW Sounding Survey

1.0 METHODOLOGY

When seismic energy is generated at or near the ground surface, both body and surface waves are produced. Body waves expand omni-directionally throughout the subsurface. They consist of both compressional (P) and shear (S) waves. Surface waves (e.g., Rayleigh, Love, etc.) radiate along the ground surface at velocities that are proportional to shear wave velocity (Vs). Rayleigh waves are characterized by retrograde elliptical particle motion, and travel at approximately 0.9 times the velocity of S-waves.

If a vertical impact source is used, approximately two-thirds of the seismic energy that is produced is in the form of ground roll. As a result, surface waves are typically the most prominent signal on multi-channel seismic records. In addition, surface waves have dispersion properties that body waves lack. That is, different wavelengths have different penetration depths and, therefore, propagate at different velocities. By analyzing the dispersion of surface waves, it is possible to obtain an S-wave versus depth velocity profile. Since s-wave velocity is directly proportional to shear modulus, this provides a direct indication in the variation of stiffness (or rigidity) of subsurface materials.

Surface waves can be recorded and analyzed using a method referred to as Multichannel Analysis of Surface Waves (MASW). This method is used to collect surface wave data using a fixed array of geophones and shot points. This is referred to as a sounding, and results in a one-dimensional (1D) model depicting variation in S-wave velocity versus depth beneath the center of the array. However, the subsurface conditions underlying the entire length of the array, and for several tens of feet to either side, contribute to the measured velocity values. The method requires an energy source that is capable of producing ground roll and geophones that are capable of detecting low frequencies (<10 Hz) signals.

2.0 INSTRUMENTATION

The seismic waveforms produced at each shot point were recorded using a Geometrics ***Geode*** 24-channel engineering distributed array seismograph, as pictured in Figure 1, and ***RT Clark*** geophones with a natural frequency of 4.5 Hz. The geophones were coupled to the ground surface by a metal spike affixed to the bottom of each geophone case. Seismic energy was produced at each shot point by multiple impacts with a 16-pound sledgehammer against a metal strike plate placed on the ground surface. The seismic waveforms were digitized, processed and amplified by the Geode, transmitted via a ruggedized Ethernet cable to a field computer and algebraically summed (stacked) until sufficient signal to noise ratio was achieved. The data were displayed on the computer's LCD screen in the form of seismograms, analyzed for quality assurance and

archived for subsequent processing. These images were subsequently used to determine the time required for P-waves to travel from each shot point to each geophone in the array (spread).



Figure 1: *Geometrics Geode 24-channel engineering distributed array seismograph.*

3.0 DATA ACQUISITION

We acquired two MASW soundings, designated as MASW-1 and MASW-2, as described in the main body of the report. The sounding locations were determined by Langan personnel. The positions of the MASW arrays are shown by the blue lines on the site location map (Plate 1). The center points of the arrays, which are considered the sounding locations, are represented by the blue diamonds. For each sounding, the seismic equipment was set out in a collinear array consisting of 24-geophones and four shot-points. The geophone stationing interval was 6-ft and shot-points were placed 2- and 6-stations off each end of the arrays, for a total line length of 210-ft. The maximum depth of exploration is determined by the frequency content of the seismograms and is estimated at 100-ft for each sounding. The configuration of each seismic array is depicted by the diagram in Figure 2, below.

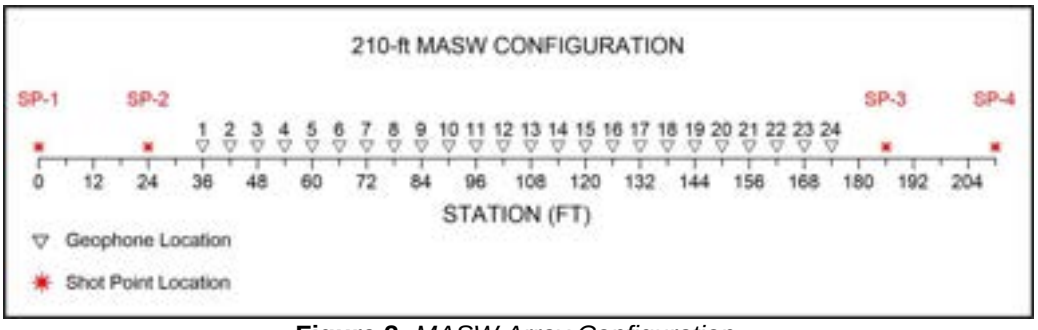


Figure 2: *MASW Array Configuration.*

4.0 DATA ANALYSIS

The seismic wave-traces (shot gathers) recorded at each shot point were analyzed using the computer program ***SURFSEIS*** developed by the Kansas Geological Survey (Version 5.0, 2016). This interactive program converts the data acquired from all four shot points in a given sounding into a dispersion curve representing phase velocity versus frequency. This curve is then inverted to produce a 1D model indicating S-wave velocity versus depth. The steps involved in this procedure are as follows:

1) The shot gathers are converted to KGS format.
2) Stations are assigned to the geophone and shot point locations.
3) The resulting records are viewed to determine their overall quality. If necessary, portions of the records are muted to remove interference from refractions, reflections and higher mode events.
4) For each formatted (and/or muted) record, the program produces what is referred to as an "overtone plot". This is a colored cross-section indicating phase velocity versus frequency and amplitude. The vertical axis represents phase velocity (increasing upward); the horizontal axis represents frequency (increasing to the right); and signal amplitude is indicated by various colors, with the hottest colors (orange to red to dark brown) representing the greatest signal to noise ratio. Typically, the strongest signals align in a curved pattern with a symmetry with the shape of a "hockey stick" where the blade is pointing upward at the lower end of the frequency spectrum (higher velocity at greater depth) and the handle projects to the right in the direction of increasing frequencies indicating lower velocities.
5) The overtone plots compiled from the four shot points are reviewed to determine their overall quality and the best among them (possibly all) are merged to form a single overtone. This enhances the overall signal to noise ratio of the survey and incorporates data from both ends of the spread (if feasible).
6) The resulting overtone plot is used as a guide in deriving a dispersion curve representing phase velocity versus frequency. This is done by fitting the curve along the center of the hockey stick where the signal to noise ratio is highest.
7) The resulting dispersion curve is inverted through an iterative process to compute a 1D model representing S-wave velocity versus depth.

The shear-wave velocities in each depth range for the soundings are tabulated in Section 5.3 of the main body of the report. The results are also presented graphically by the step-chart graphs on Plates 3 and 4.

5.0 LIMITATIONS

Extraneous seismic energy sources such as wind, traffic or nearby machinery may create “noise” on the recorded waveforms. Also, live electric lines may induce unwanted electrical current into the seismic cable, also creating noise. If the seismic source used for the survey does not produce sufficient energy to propagate through the entire spread at detectable levels, the wave forms created by the surface waves may be overly contaminated by noise and reduce the signal-to-noise ratio and thus the data quality.

In noisy conditions many “stacks” may be necessary to achieve an acceptable signal-to-noise ratio. Stacking consists of superposition of waveforms such that the stacked shot energy builds with successive shots whereas the noise tends to cancel itself out due to its random nature. In some cases, however, noise is not sufficiently random to be reduced to acceptable levels.

APPENDIX F

LABORATORY TEST RESULTS BY ARUP/RYCG

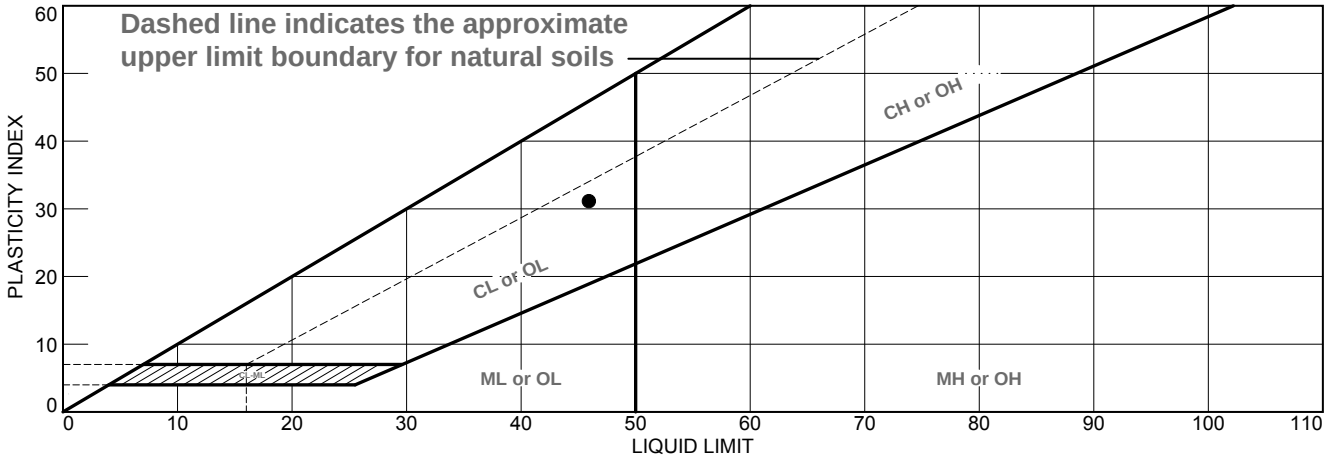
DRAFT

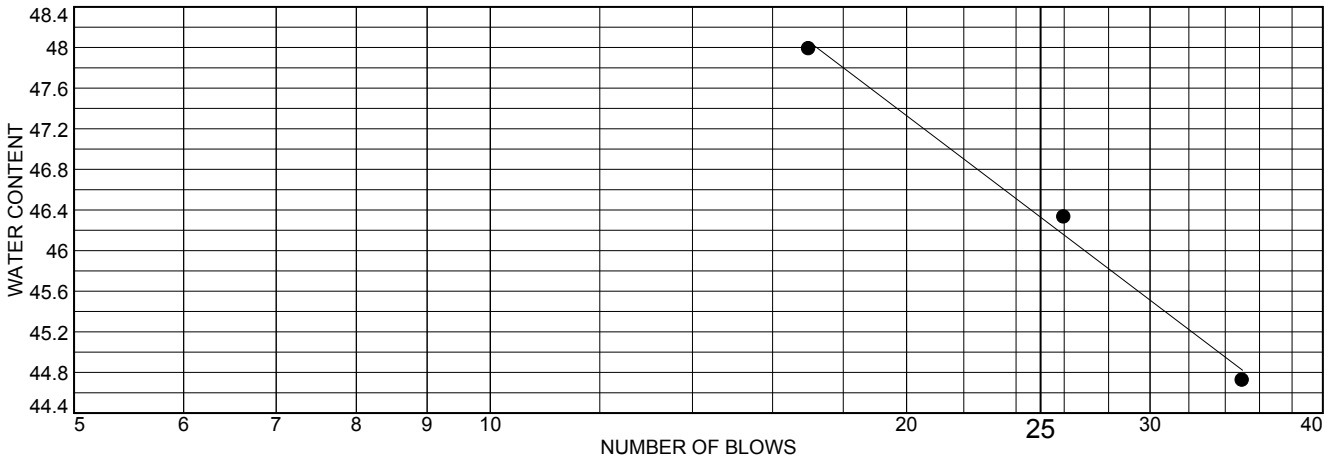
MOISTURE & DENSITY TEST

Client : ARUP/RYCG JV Project : SFMTA Potrero ISI Lab No.: G-62084 Job no : 260018-00 2018-001

	Boring #	BH-06	BH-02	BH-02					
	Sample #	6-2A	2-2B	2-14B					
	Depth (ft.)	5.5-6	6.5-7	75.5-76					
	Soil type: (visual)	Brown sandy clay	Reddish brown silty, clayey sand	Gray bedrock					
1.	Date tested:	04/15/18	04/15/18	04/09/18					
2.	Tested by:	JH	JH	JH					
3.	Specimen height (in.)	4.71	6.00						
4.	Wt. of specimen + tare (gm)	704.01	959.19						
5.	Tare wt. (gm)	0.00	0.00						
6.	Diameter (in.)	2.40	2.39						
7.	Wet wt. of soil + dish wt. (gm)	439.77	211.93	489.90					
8.	Dry wt. of soil + dish wt. (gm)	400.56	190.90	479.76					
9.	Wt. of dish (gm)	187.58	51.47	188.32					
10.	Dish ID								
	Wet Density (pcf)	125.8	135.6						
	Dry Density (pcf)	106.2	117.9						
	Moisture Content (%)	18.4	15.1	3.5					
	Gs (Assumed)	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
	Void Ratio	0.586	0.429						
	Saturation (%)	84.8	94.8						
	Additional data:								
	Wt. of dry soil + dish before washing (gm)								
	Wt. of dry soil + dish after washing (gm)								
	% Passing # 200 sieve								
	USCS symbol								

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown clay with sand	46	15	31	97	72	CL

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero

260018-00 2018-001

●**Source of Sample:** BH-01 **Depth:** 3.5-4.5 **Sample Number:** 1-1B & 1-1C

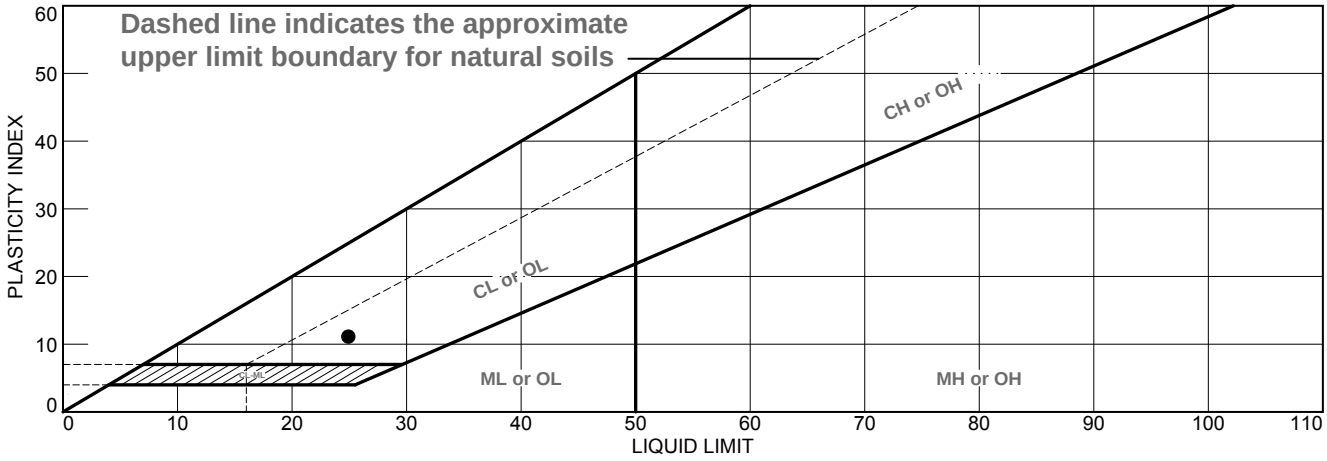
Remarks:

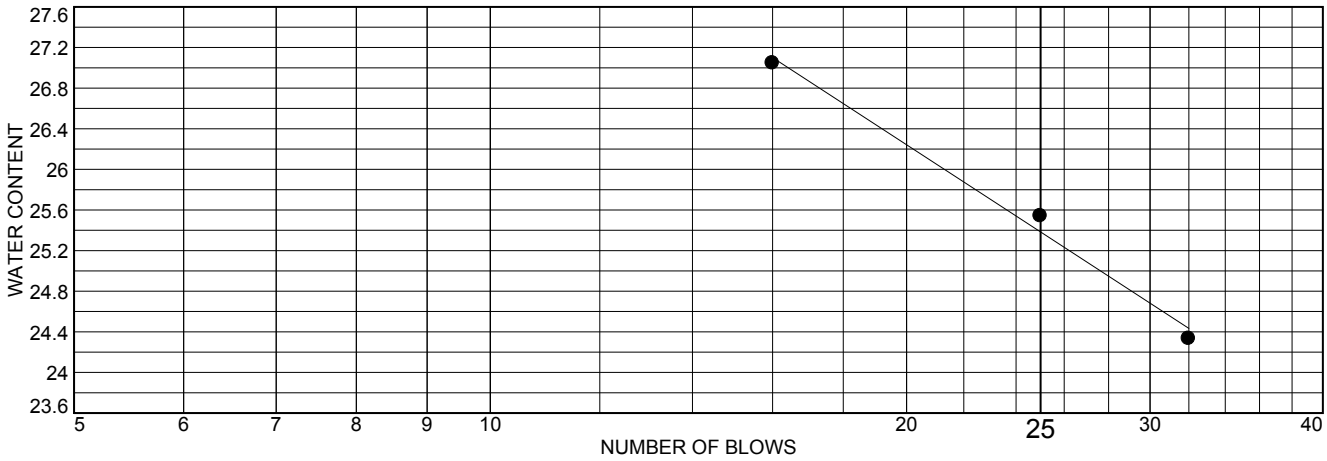
●Combined both samples

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown clayey sand	25	14	11	99	43	SC

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero
260018-00 2018-001

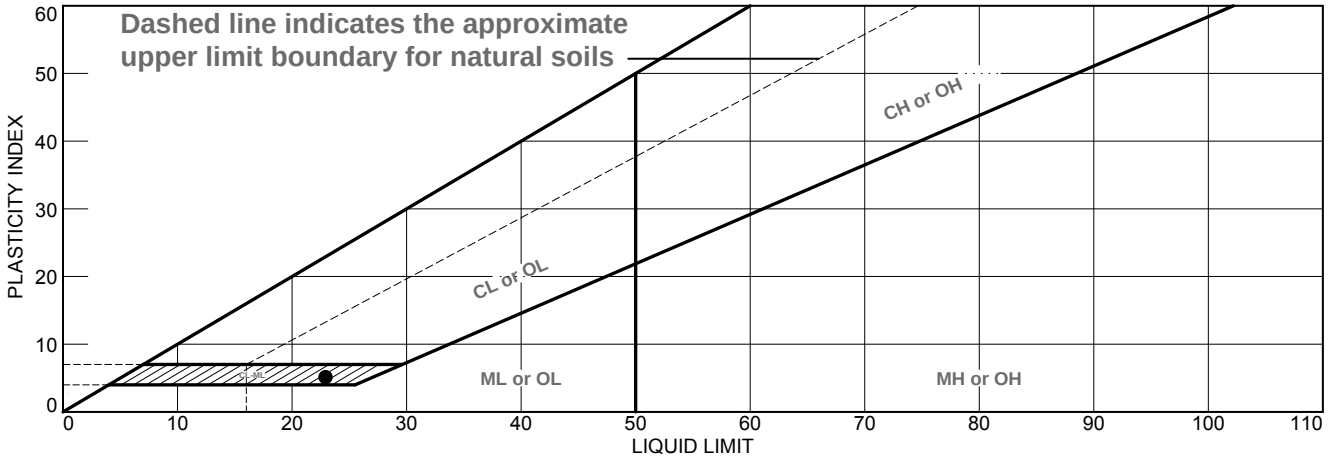
●**Source of Sample:** BH-01 **Depth:** 11-11.5 **Sample Number:** 1-3B

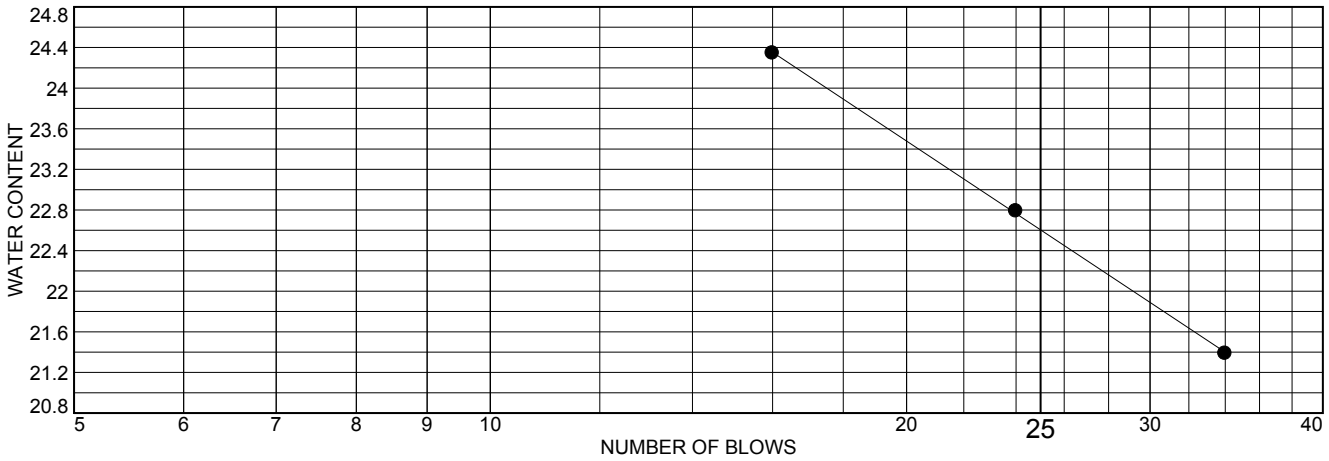
Remarks:

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Reddish brown silty, clayey sand	23	18	5	97	23	SC-SM

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero

260018-00 2018-001

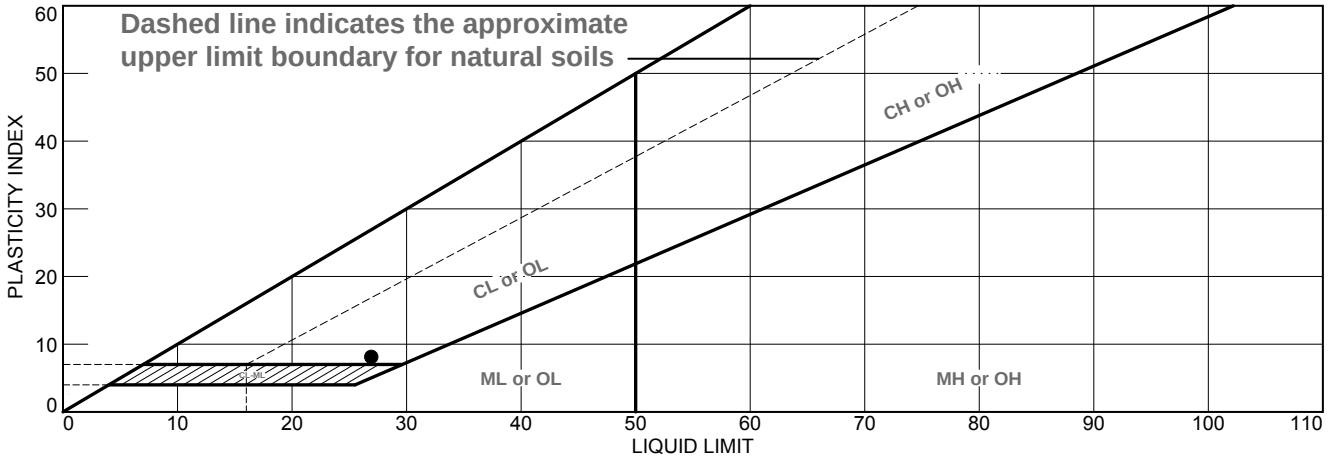
●**Source of Sample:** BH-02 **Depth:** 6.5-7 **Sample Number:** 2-2B

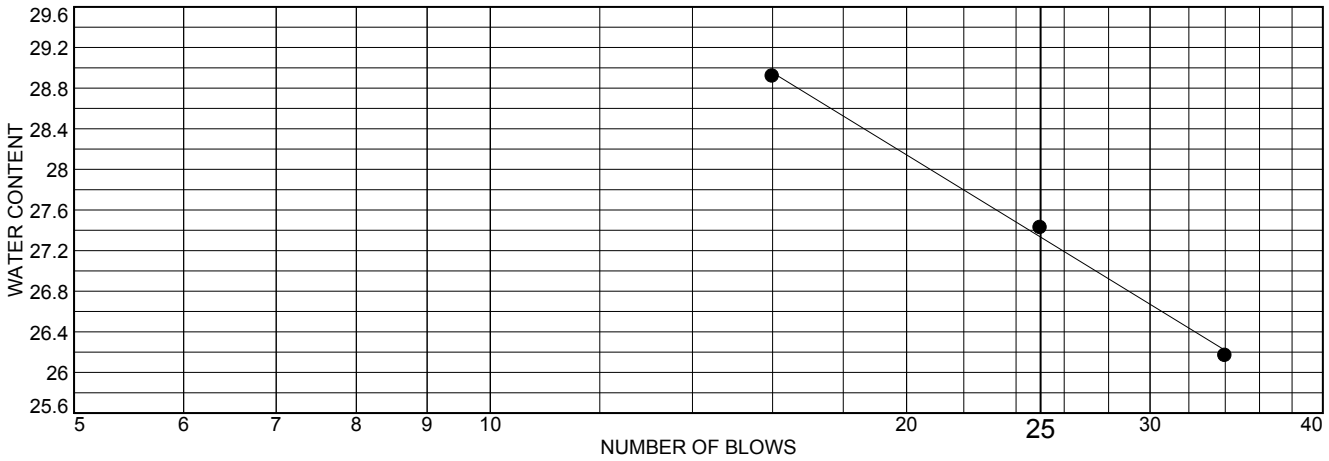
Remarks:

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown sand with clay	27	19	8	95	25	SC

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero
260018-00 2018-001

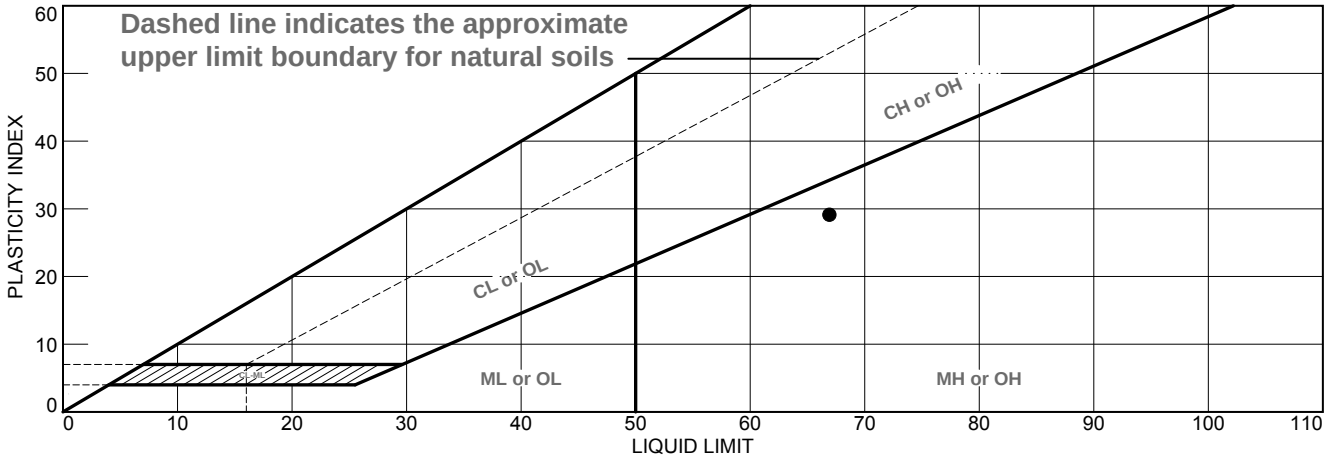
●**Source of Sample:** BH-03 **Depth:** 6-6.5 **Sample Number:** 3-2B

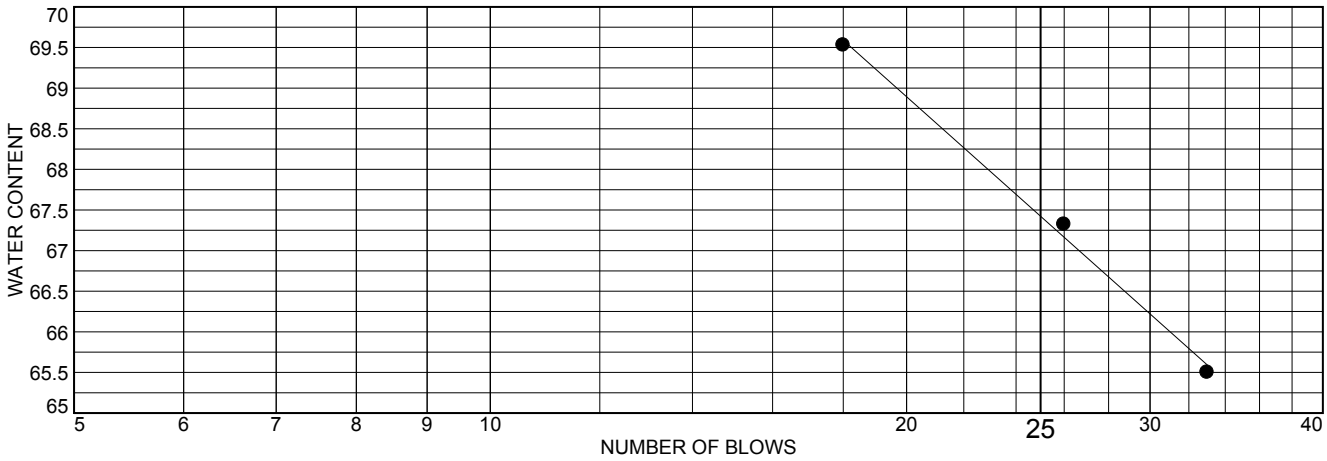
Remarks:

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown sandy silt with gravel	67	38	29	62	49	SM

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero
260018-00 2018-001

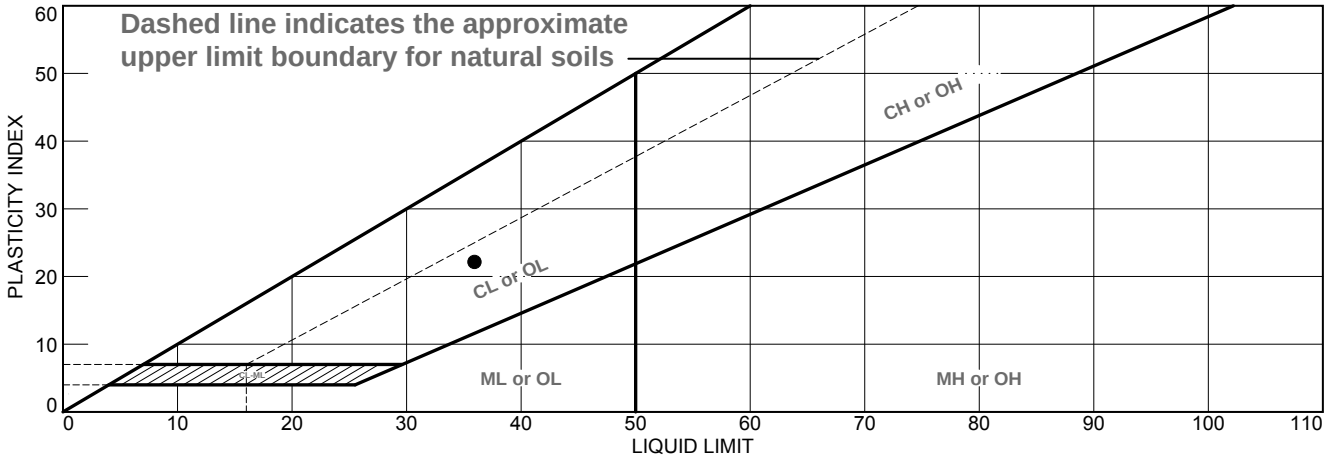
●**Source of Sample:** BH-04 **Depth:** 5-5.5 **Sample Number:** 4-2B

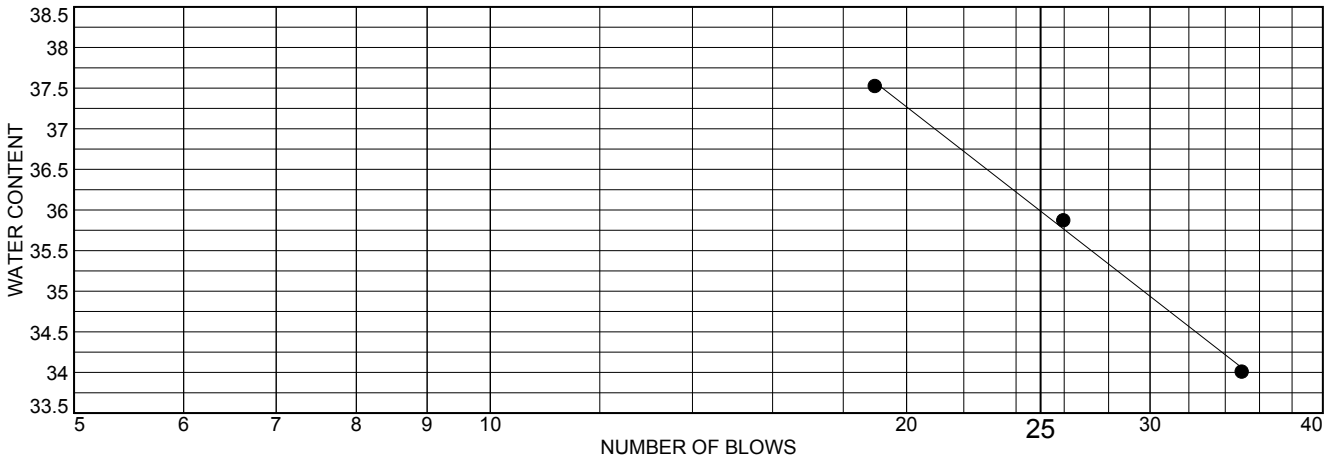
Remarks:

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Reddish brown clayey sand	36	14	22	96	49	SC

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero
260018-00 2018-001

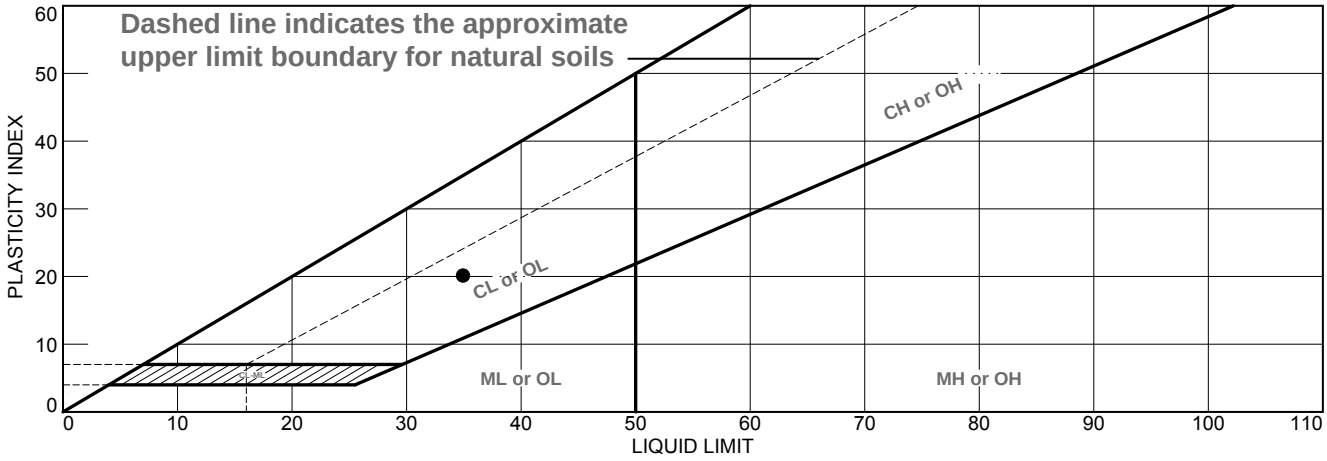
●**Source of Sample:** BH-04 **Depth:** 15-15.5 **Sample Number:** 4-4B

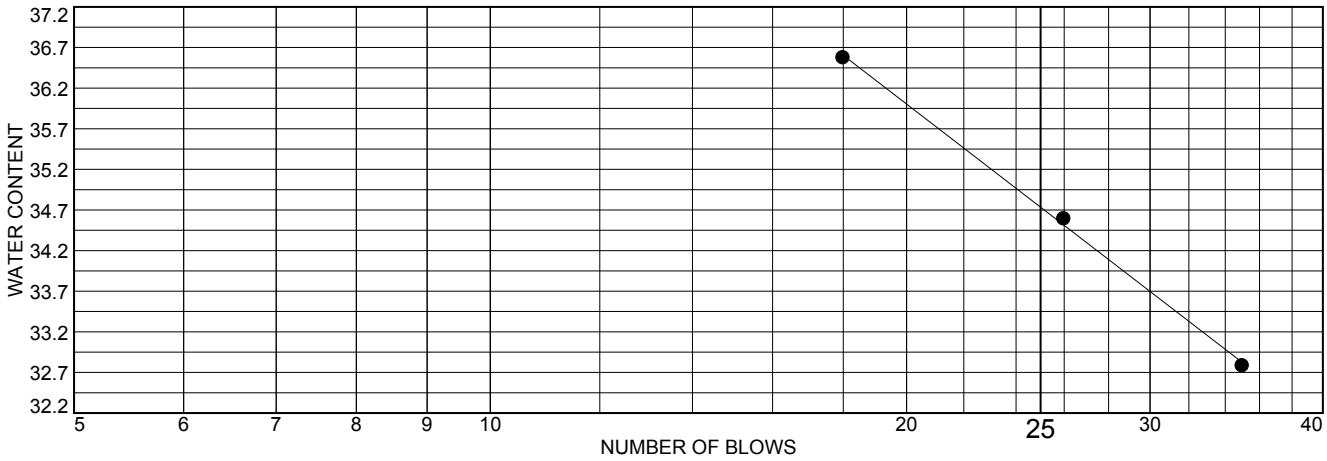
Remarks:

Figure

Tested By: JH **Checked By:** JH

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown sandy clay	35	15	20	96	69	CL

Project No. 2657-003.0 **Client:** ARUP/RYCG JV

Project: SFMTA Potrero
260018-00 2018-001

●**Source of Sample:** BH-06 **Depth:** 5.5-6 **Sample Number:** 6-2A

Remarks:

Figure

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	25	72	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#20	99		
#40	97		
#60	91		
#140	75		
#200	72		

* (no specification provided)

Soil Description

Brown clay with sand

Atterberg Limits

PL= 15 LL= 46 PI= 31

Coefficients

D_{90}= 0.2368 D_{85}= 0.1861 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

Combined both samples

Source of Sample: BH-01 **Depth:** 3.5-4.5
Sample Number: 1-1B & 1-1C

Date: 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0

Figure

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	56	43	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	88		
#140	45		
#200	43		

* (no specification provided)

Soil Description

Brown clayey sand

Atterberg Limits

PL= 14 LL= 25 PI= 11

Coefficients

D_{90}= 0.2626 D_{85}= 0.2333 D_{60}= 0.1495
D_{50}= 0.1221 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

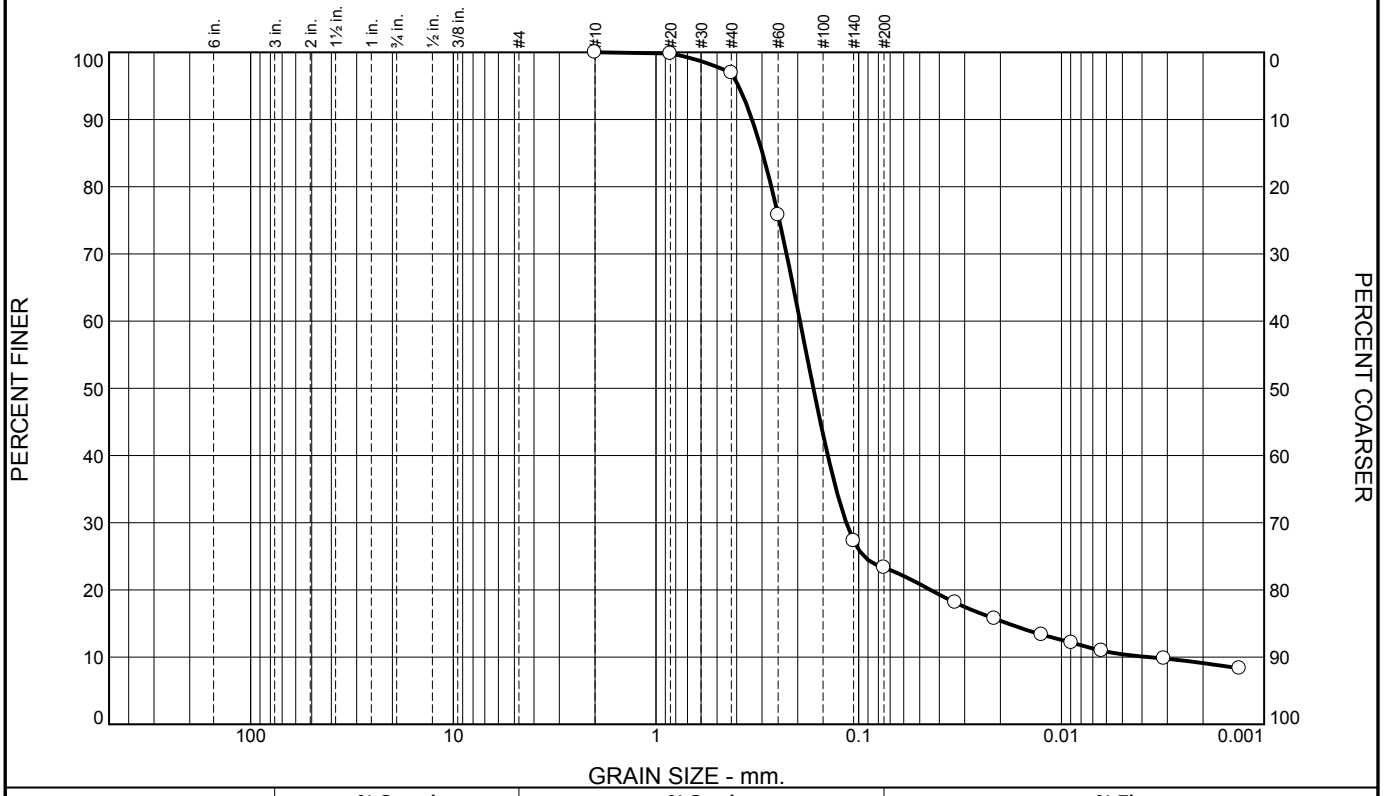
Remarks

Source of Sample: BH-01 **Depth:** 11-11.5
Sample Number: 1-3B **Date:** 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	74	13	10

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100		
#20	100		
#40	97		
#60	76		
#140	27		
#200	23		
0.0335 mm.	18		
0.0214 mm.	16		
0.0125 mm.	13		
0.0089 mm.	12		
0.0063 mm.	11		
0.0031 mm.	9.8		
0.0013 mm.	8.3		

* (no specification provided)

Soil Description

Reddish brown silty, clayey sand

Atterberg Limits

PL= 18 LL= 23 PI= 5

Coefficients

D_{90}= 0.3360 D_{85}= 0.2984 D_{60}= 0.1948
D_{50}= 0.1674 D_{30}= 0.1153 D_{15}= 0.0184
D_{10}= 0.0037 C_u= 52.62 C_c= 18.42

Classification

USCS= SC-SM AASHTO= A-2-4(0)

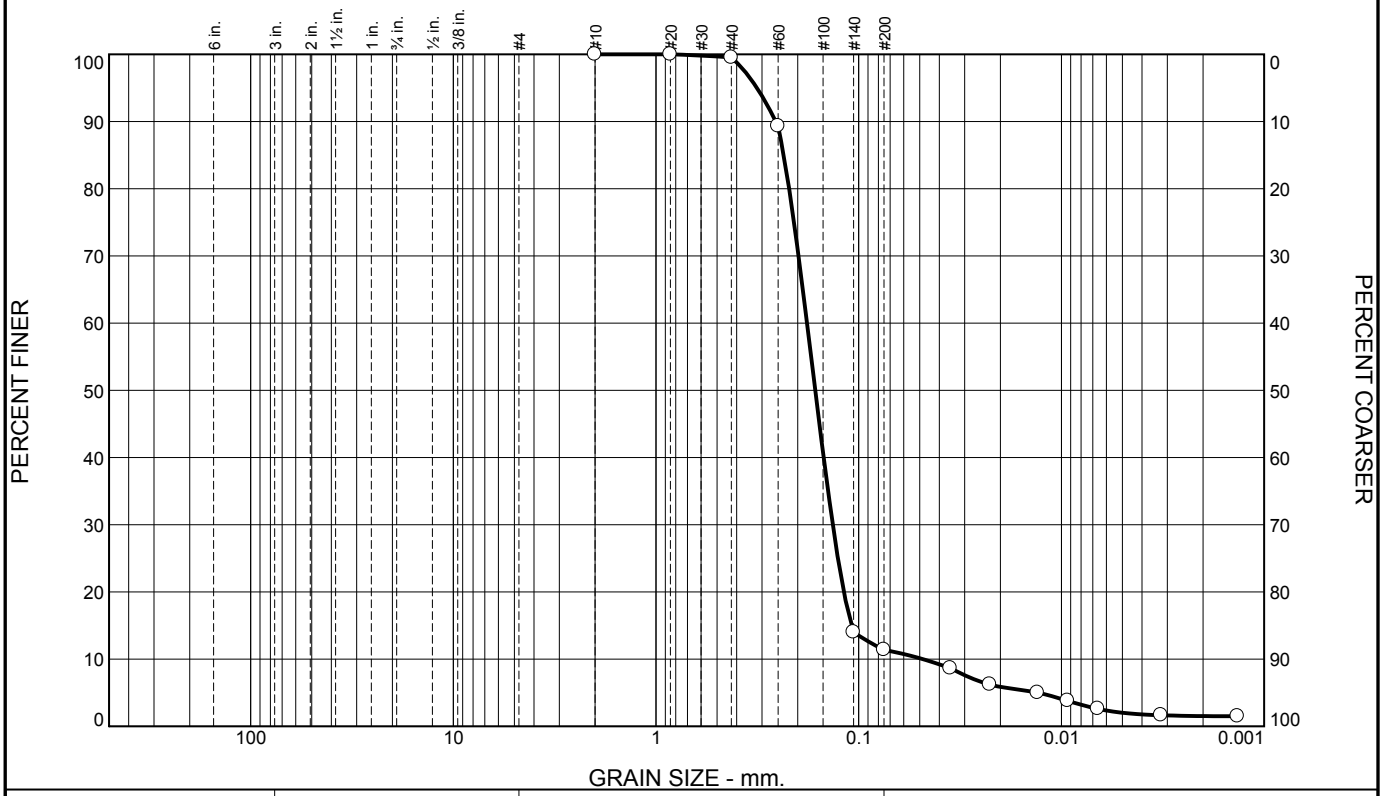
Remarks

Source of Sample: BH-02 **Depth:** 6.5-7
Sample Number: 2-2B **Date:** 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	0	89	9	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100		
#20	100		
#40	100		
#60	89		
#140	14		
#200	11		
0.0352 mm.	8.7		
0.0225 mm.	6.2		
0.0131 mm.	5.0		
0.0093 mm.	3.8		
0.0066 mm.	2.6		
0.0032 mm.	1.6		
0.0014 mm.	1.5		

* (no specification provided)

Soil Description

Brown sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2566 D_{85}= 0.2347 D_{60}= 0.1799
D_{50}= 0.1639 D_{30}= 0.1343 D_{15}= 0.1085
D_{10}= 0.0483 C_u= 3.72 C_c= 2.08

Classification

USCS= AASHTO=

Remarks

Source of Sample: BH-02 **Depth:** 36-36.5
Sample Number: 2-8B **Date:** 4-30-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	89	9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100		
#20	100		
#40	98		
#60	80		
#140	12		
#200	9.5		

* (no specification provided)

Soil Description

Brown sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3032 D_{85}= 0.2726 D_{60}= 0.1962
D_{50}= 0.1763 D_{30}= 0.1413 D_{15}= 0.1133
D_{10}= 0.0801 C_u= 2.45 C_c= 1.27

Classification

USCS= AASHTO=

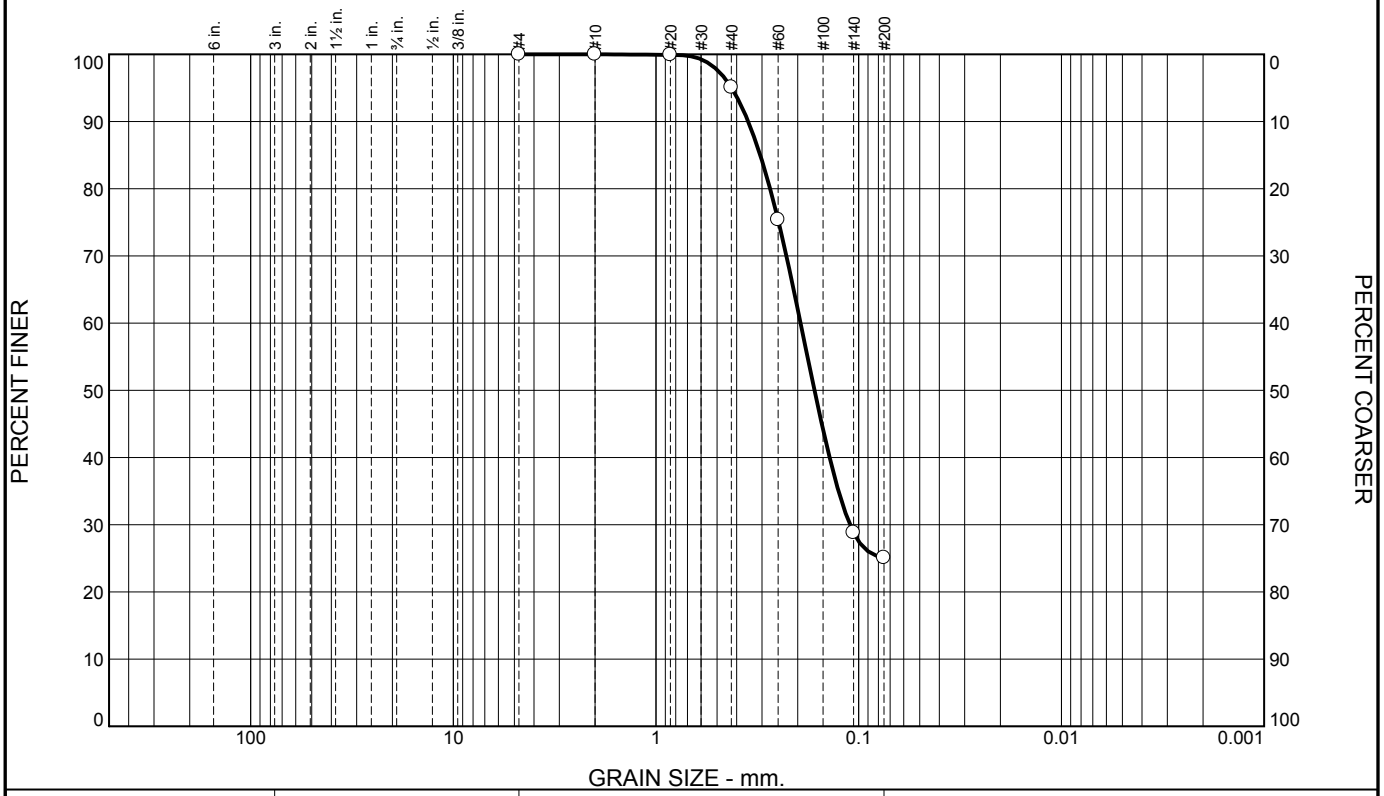
Remarks

Source of Sample: BH-02 **Depth:** 41-41.5
Sample Number: 2-9B **Date:** 5-10-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	5	70	25	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#20	100		
#40	95		
#60	75		
#140	29		
#200	25		

* (no specification provided)

Soil Description

Brown sand with clay

Atterberg Limits

PL= 19 LL= 27 PI= 8

Coefficients

D_{90}= 0.3510 D_{85}= 0.3062 D_{60}= 0.1936
D_{50}= 0.1653 D_{30}= 0.1105 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Source of Sample: BH-03 **Depth:** 6-6.5
Sample Number: 3-2B **Date:** 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	13	6	15	13	32	17

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4	96		
3/8	88		
#4	83		
#10	77		
#20	68		
#40	62		
#60	58		
#140	51		
#200	49		
0.0304 mm.	34		
0.0199 mm.	28		
0.0118 mm.	24		
0.0085 mm.	20		
0.0061 mm.	18		
0.0030 mm.	14		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Brown sandy silt with gravel

Atterberg Limits

PL= 38 LL= 67 PI= 29

Coefficients

D_{90}= 11.5208 D_{85}= 6.6627 D_{60}= 0.3312
D_{50}= 0.0884 D_{30}= 0.0230 D_{15}= 0.0036
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-7-5(11)

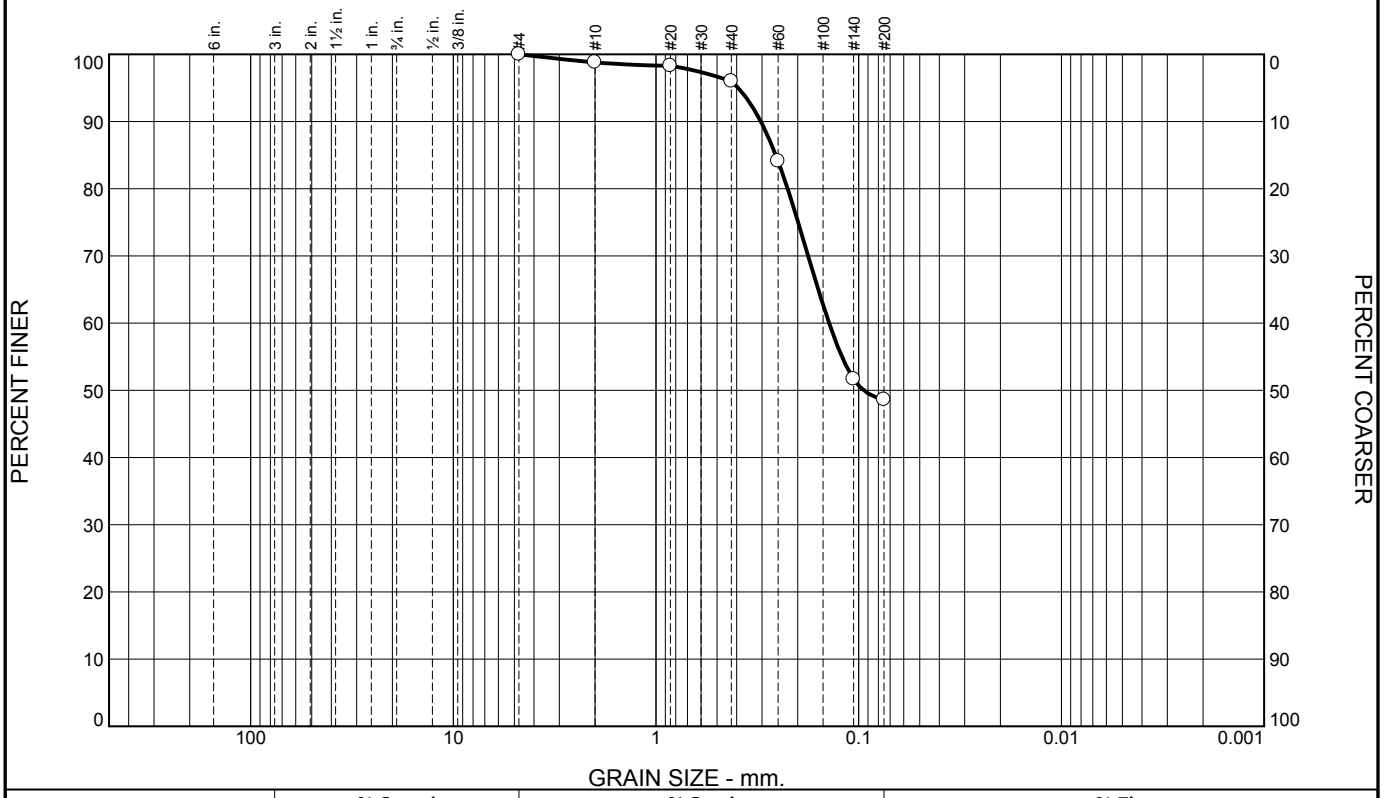
Remarks

Source of Sample: BH-04 **Depth:** 5-5.5
Sample Number: 4-2B **Date:** 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	47	49	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	99		
#20	98		
#40	96		
#60	84		
#140	52		
#200	49		

* (no specification provided)

Soil Description

Reddish brown clayey sand

Atterberg Limits

PL= 14 LL= 36 PI= 22

Coefficients

D_{90}= 0.3041 D_{85}= 0.2566 D_{60}= 0.1400
D_{50}= 0.0947 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(7)

Remarks

Source of Sample: BH-04 **Depth:** 15-15.5
Sample Number: 4-4B **Date:** 5-7-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	56	42	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#20	99		
#40	98		
#60	84		
#140	46		
#200	42		

* (no specification provided)

Soil Description

Reddish brown clayey sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2935 D_{85}= 0.2548 D_{60}= 0.1541
D_{50}= 0.1230 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

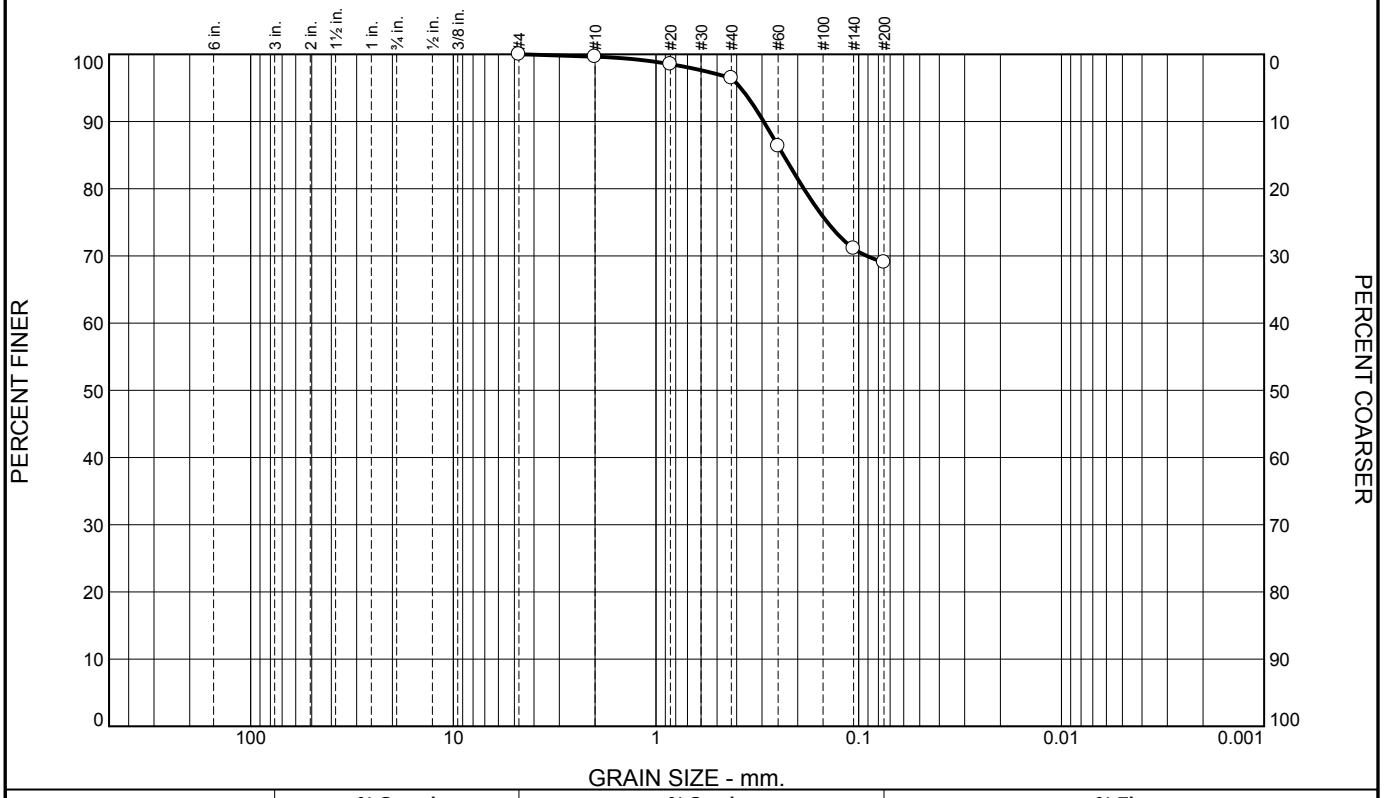
Remarks

Source of Sample: BH-04 **Depth:** 20-20.5
Sample Number: 4-5B **Date:** 5-11-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	27	69	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#20	99		
#40	96		
#60	86		
#140	71		
#200	69		

* (no specification provided)

Soil Description

Brown sandy clay

Atterberg Limits

PL= 15 LL= 35 PI= 20

Coefficients

D_{90}= 0.2945 D_{85}= 0.2353 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(11)

Remarks

Source of Sample: BH-06 **Depth:** 5.5-6
Sample Number: 6-2A

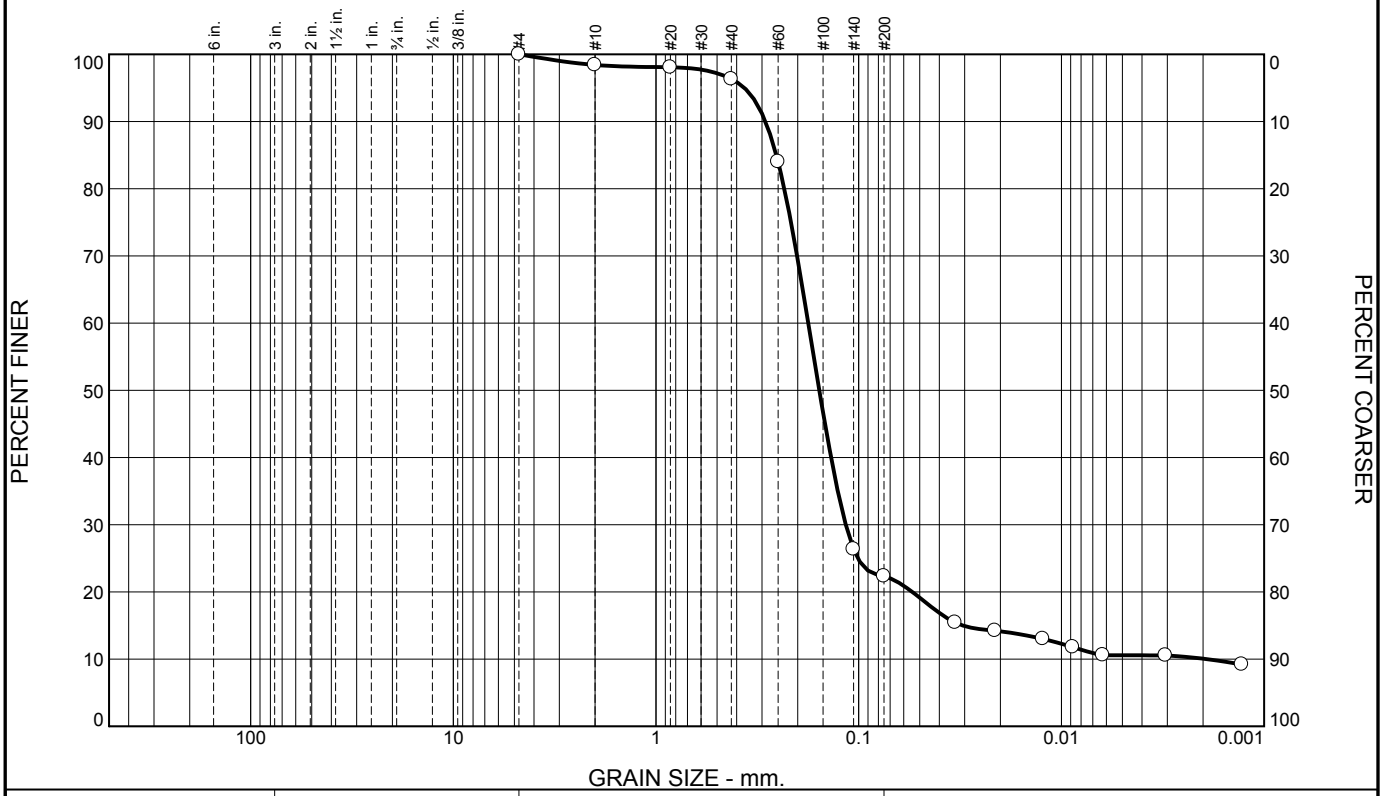
Date: 4-20-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0

Figure

Tested By: JH **Checked By:** JH

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	2	74	11	11

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	98		
#20	98		
#40	96		
#60	84		
#140	26		
#200	22		
0.0334 mm.	15		
0.0212 mm.	14		
0.0123 mm.	13		
0.0088 mm.	12		
0.0062 mm.	11		
0.0031 mm.	11		
0.0013 mm.	9.2		

* (no specification provided)

Soil Description

Brown clayey sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2887 D_{85}= 0.2550 D_{60}= 0.1774
D_{50}= 0.1565 D_{30}= 0.1159 D_{15}= 0.0306
D_{10}= 0.0019 C_u= 92.35 C_c= 39.45

Classification

USCS= SC AASHTO=

Remarks

Source of Sample: BH-06 **Depth:** 15-15.5
Sample Number: 6-4B **Date:** 5-10-18

Client: ARUP/RYCG JV
Project: SFMTA Potrero
260018-00 2018-001
Project No: 2657-003.0 **Figure**

Tested By: JH **Checked By:** JH

UNCONSOLIDATED UNDRAINED COMPRESSION TEST - ASTM D2850

Client : ARUP/RYCG JV
Project : SFMTA Potrero
Job # : 260018-00 2018-001
Boring # BH-01
Sample # : 1-13B
Depth (ft) : 60.25-60.75
Date tested : 04/15/18
Soil : Greenish gray bedrock

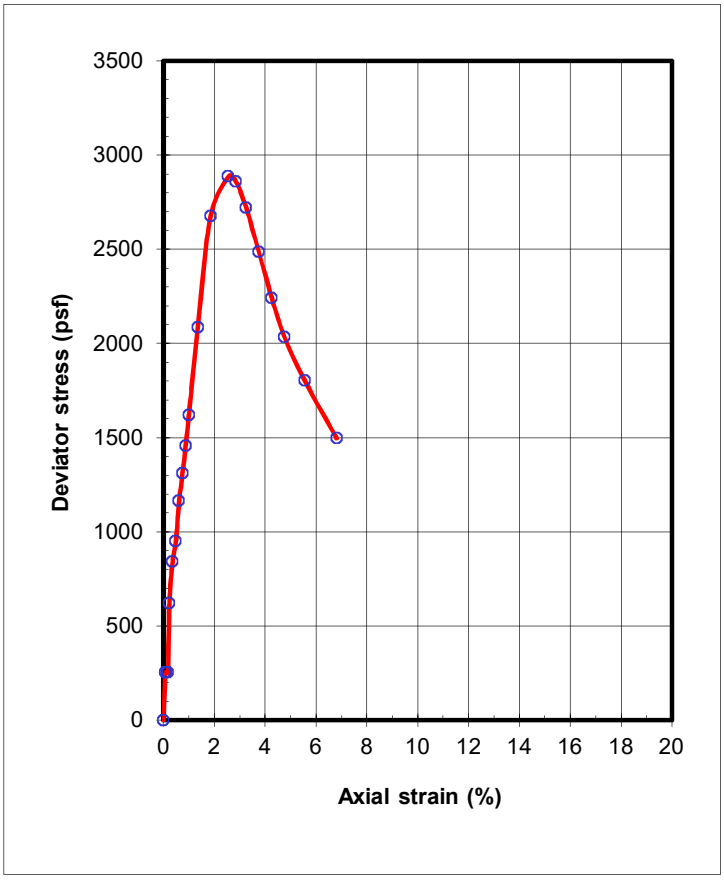
Data Reduction:

Dial factor = 1.0 in/unit
Load factor = 1.0 lb/unit

Specimen:
Total wt. = 863.4 gms
Ht. = 5.720 in
Ave dia. = 2.397 in
Area = 4.513 sq.in
Volume = 423.0 c.c.
Shearing rate = 0.03 inch/min
Shearing rate = 0.5 %/min
Gs (assumed) = 2.70

Test Report:
Void ratio = 0.595
Ht/Dia ratio = 2.39
Moisture = 20.6 %
Total density = 127.4 pcf
Dry density = 105.6 pcf
Saturation = 93.4 %
Chamber pressure = 5040 psf
Max. deviator stress = 2886 psf
Strain @ failure = 2.55 %

Dial Read.	Load Read.	Axial Strain (%)	Deviator Stress (psf)
-0.002		0.00	0.0
0.003	8.0	0.08	254.6
0.006	8.0	0.13	254.5
0.009	8.0	0.18	254.3
0.011	19.5	0.23	620.5
0.019	26.5	0.36	842.6
0.026	29.9	0.49	950.8
0.033	36.7	0.61	1163.4
0.041	41.4	0.75	1311.1
0.048	46.1	0.87	1457.5
0.055	51.2	1.00	1618.8
0.075	66.2	1.35	2083.8
0.104	85.5	1.85	2676.0
0.144	92.8	2.55	2886.5
0.161	92.3	2.85	2860.5
0.184	88.1	3.25	2719.8
0.213	80.9	3.75	2484.7
0.242	73.3	4.26	2239.7
0.270	66.9	4.75	2034.5
0.316	59.8	5.56	1802.9
0.388	50.3	6.81	1496.1



UNCONSOLIDATED UNDRAINED COMPRESSION TEST - ASTM D2850

Client : ARUP/RYCG JV
Project : SFMTA Potrero
Job # : 260018-00 2018-001
Boring # BH-02
Sample # : 2-4B
Depth (ft) : 16-16.5
Date tested : 04/15/18
Soil : Grayish brown clay with sand

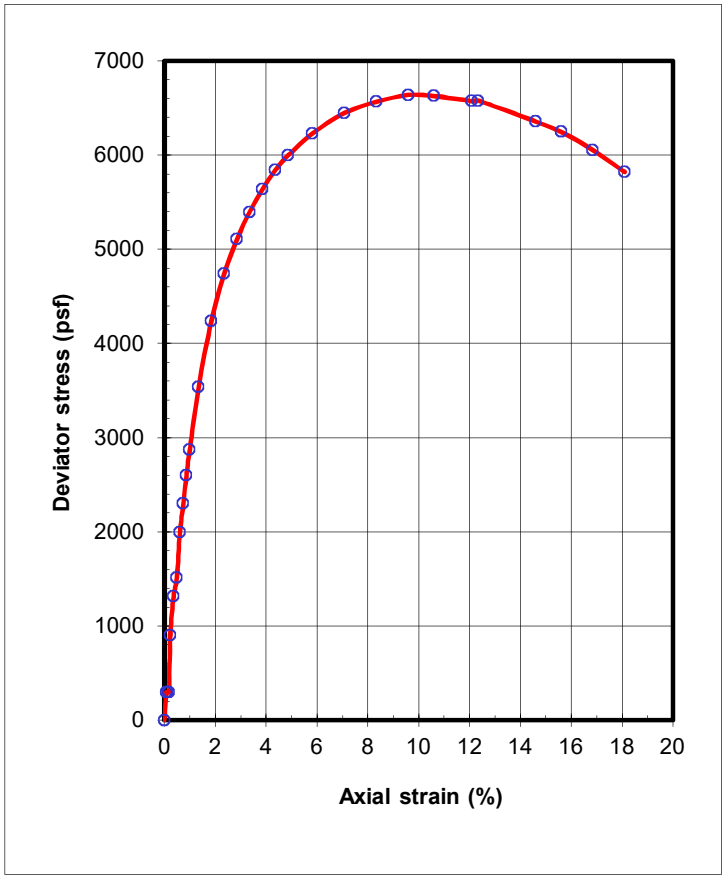
Data Reduction:

Dial factor = 1.0 in/unit
Load factor = 1.0 lb/unit

Specimen:
Total wt. = 909.7 gms
Ht. = 5.720 in
Ave dia. = 2.403 in
Area = 4.538 sq.in
Volume = 425.4 c.c.
Shearing rate = 0.04 inch/min
Shearing rate = 0.75 %/min
Gs (assumed) = 2.70

Test Report:
Void ratio = 0.500
Ht/Dia ratio = 2.38
Moisture = 18.8 %
Total density = 133.4 pcf
Dry density = 112.3 pcf
Saturation = 101.6 %
Chamber pressure = 2016 psf
Max. deviator stress = 6638 psf
Strain @ failure = 9.58 %

Dial Read.	Load Read.	Axial Strain (%)	Deviator Stress (psf)
-0.002		0.00	0.0
0.003	9.4	0.08	298.4
0.006	9.4	0.12	298.2
0.009	9.4	0.18	298.0
0.011	28.4	0.23	900.6
0.019	41.6	0.36	1314.7
0.026	48.0	0.49	1515.6
0.033	63.3	0.61	1994.8
0.041	73.0	0.74	2300.2
0.048	82.6	0.86	2598.6
0.055	91.4	0.99	2871.8
0.075	113.0	1.34	3535.9
0.104	136.1	1.85	4238.1
0.133	153.0	2.35	4741.3
0.162	165.7	2.85	5108.8
0.190	176.0	3.35	5396.3
0.219	184.7	3.86	5634.5
0.248	192.5	4.36	5842.6
0.277	198.7	4.87	5998.4
0.331	208.5	5.82	6229.5
0.403	218.7	7.07	6447.2
0.475	225.7	8.33	6565.2
0.547	231.4	9.58	6637.7
0.604	233.6	10.59	6628.1
0.690	235.7	12.09	6573.3
0.704	236.5	12.34	6578.4
0.833	234.6	14.60	6356.5
0.891	233.2	15.60	6246.3
0.962	229.5	16.85	6053.8
1.034	224.0	18.10	5820.9



UNCONSOLIDATED UNDRAINED COMPRESSION TEST - ASTM D2850

Client : ARUP/RYCG JV
Project : SFMTA Potrero
Job # : 260018-00 2018-001
Boring # BH-03
Sample # : 3-3B
Depth (ft) : 10-10.5
Date tested : 04/15/18
Soil : Yellowish brown bedrock

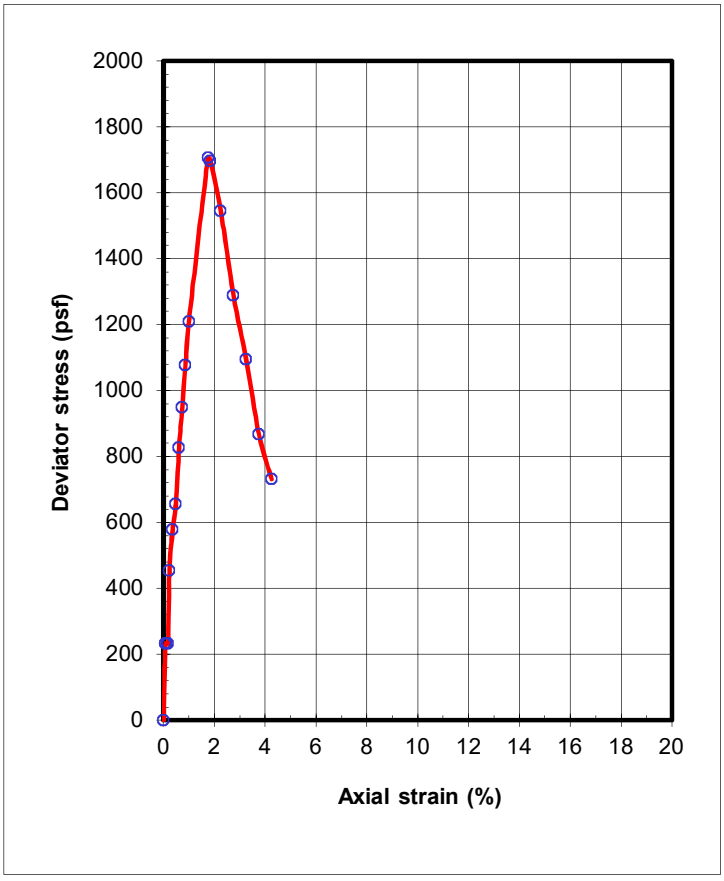
Data Reduction:

Dial factor = 1.0 in/unit
Load factor = 1.0 lb/unit

Specimen:
Total wt. = 705.5 gms
Ht. = 5.800 in
Ave dia. = 2.393 in
Area = 4.501 sq.in
Volume = 427.8 c.c.
Shearing rate = 0.03 inch/min
Shearing rate = 0.5 %/min
Gs (assumed) = 2.70

Test Report:
Void ratio = 1.223
Ht/Dia ratio = 2.42
Moisture = 35.8 %
Total density = 102.9 pcf
Dry density = 75.8 pcf
Saturation = 79.0 %
Chamber pressure = 1008 psf
Max. deviator stress = 1706 psf
Strain @ failure = 1.75 %

Dial Read.	Load Read.	Axial Strain (%)	Deviator Stress (psf)
-0.002		0.00	0.0
0.003	7.3	0.08	233.0
0.006	7.3	0.13	232.9
0.009	7.3	0.18	232.7
0.012	14.2	0.23	453.4
0.019	18.1	0.36	578.5
0.027	20.6	0.49	656.2
0.034	26.0	0.61	825.6
0.041	29.9	0.74	949.2
0.049	33.9	0.87	1076.5
0.056	38.2	1.00	1209.2
0.100	54.3	1.75	1705.9
0.106	54.0	1.85	1696.2
0.129	49.4	2.25	1545.6
0.158	41.4	2.75	1289.1
0.187	35.4	3.25	1094.4
0.216	28.2	3.75	867.8
0.245	23.9	4.25	731.3



INSPECTION SERVICES, INC. BERKELEY, CA

UNCONSOLIDATED UNDRAINED COMPRESSION TEST - ASTM D2850

Client : ARUP/RYCG JV
Project : SFMTA Potrero
Job # : 260018-00 2018-001
Boring # BH-06
Sample # : 6-5B
Depth (ft) : 20-20.5
Date tested : 04/15/18
Soil : Greenish gray sandy clay

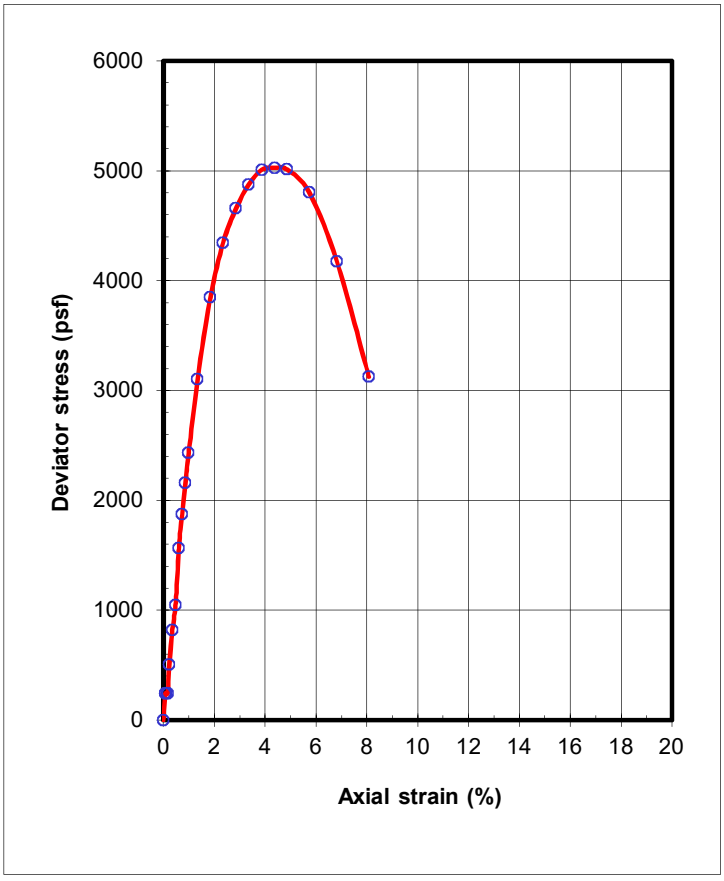
Data Reduction:

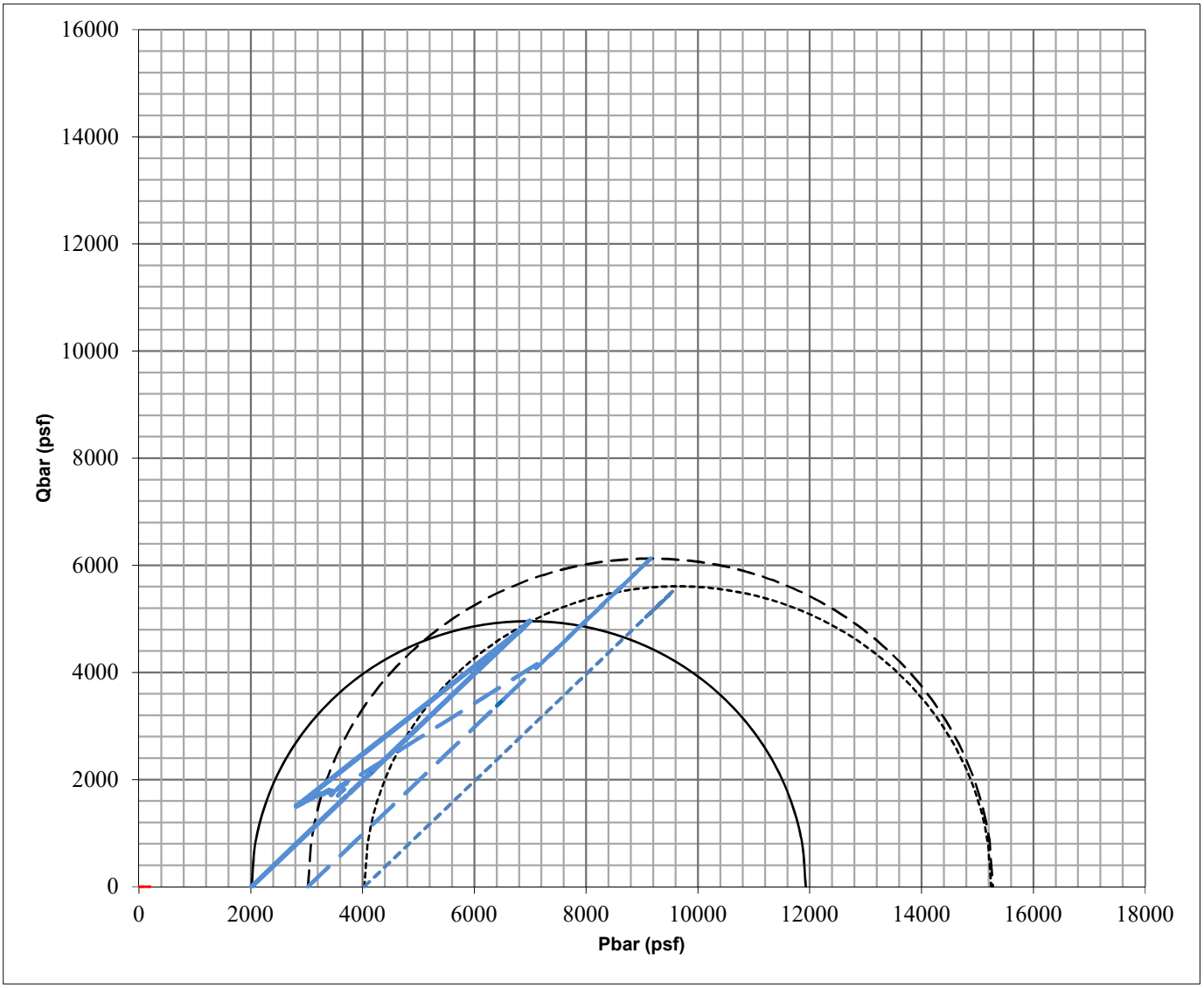
Dial factor = 1.0 in/unit
Load factor = 1.0 lb/unit

Specimen:
Total wt. = 888.1 gms
Ht. = 5.780 in
Ave dia. = 2.400 in
Area = 4.526 sq.in
Volume = 428.7 c.c.
Shearing rate = 0.04 inch/min
Shearing rate = 0.75 %/min
Gs (assumed) = 2.70

Test Report:
Void ratio = 0.581
Ht/Dia ratio = 2.41
Moisture = 21.3 %
Total density = 129.3 pcf
Dry density = 106.6 pcf
Saturation = 99.1 %
Chamber pressure = 2016 psf
Max. deviator stress = 5026 psf
Strain @ failure = 4.37 %

Dial Read.	Load Read.	Axial Strain (%)	Deviator Stress (psf)
-0.001		0.00	0.0
0.003	7.7	0.08	245.4
0.006	7.7	0.12	245.2
0.008	7.7	0.17	245.1
0.012	15.9	0.23	505.9
0.019	25.9	0.35	822.2
0.026	33.1	0.47	1047.8
0.034	49.5	0.61	1566.4
0.041	59.3	0.73	1874.4
0.048	68.4	0.86	2157.5
0.056	77.2	0.99	2432.8
0.076	98.9	1.34	3103.0
0.105	123.2	1.84	3846.7
0.134	139.9	2.34	4345.8
0.163	150.7	2.85	4657.8
0.192	158.5	3.36	4872.6
0.222	163.8	3.86	5009.5
0.251	165.2	4.37	5025.7
0.280	165.5	4.86	5010.9
0.330	160.2	5.73	4805.2
0.393	140.7	6.82	4172.0
0.465	106.9	8.08	3126.9





PQ MOHR GRAPH

Failure Criteria Maximum Effective σ1 / σ3 ratio

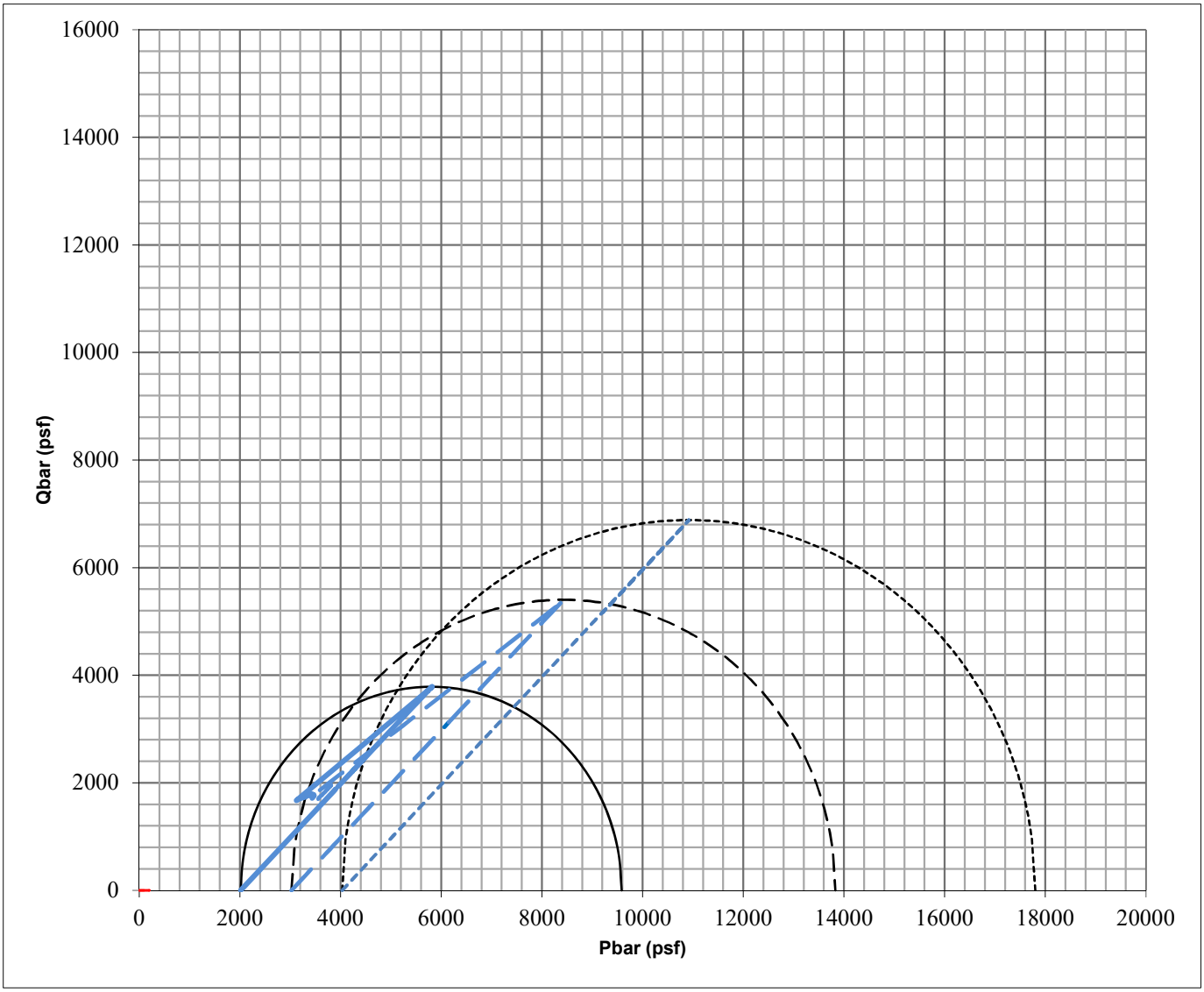
Line Type	Minor Principal Stress at failure (psf) σ_3	Maximum Deviator Stress at failure (psf)	Axial Strain at Failure (%)	Initial Height (in.)	Initial Diam. (in.)	Initial Moisture Content (%)	Initial Wet Density (pcf)	Initial Dry Density (pcf)	Initial Void Ratio	Initial Satura-tion (%)	Specific Gravity (assumed)	Rate of Strain (%/min)	Liquid Limit	Plastic Limit	Height to Diameter Ratio
solid	2016	9913	2.60	5.62	2.40	25.65	122.7	97.7	0.726	95.4	2.70	0.02			2.3
dash	3024	12252	1.80	5.62	2.43	25.65	119.5	95.1	0.772	89.7	2.70	0.02			2.3
dot	4032	11215	19.75	5.62	2.46	25.65	117.0	93.1	0.810	85.5	2.70	0.02			2.3

Client:	**ARUP/RYCG JV**	Boring #:	**BH-01**	Sample #: **1-7B**
Project:	**SFMTA Potrero**	Depth (ft):	**31-31.5**	
Project #:	**260018-00 2018-001**	Soil:	**Brown sand**	

ASTM D-4767	**STAGED TRIAXIAL COMPRESSION CONSOLIDATED-DRAINED**	**TXCD**

Inspection Services Inc.

PLATE NUMBER_____



PQ MOHR GRAPH

Failure Criteria Maximum Effective σ1 / σ3 ratio

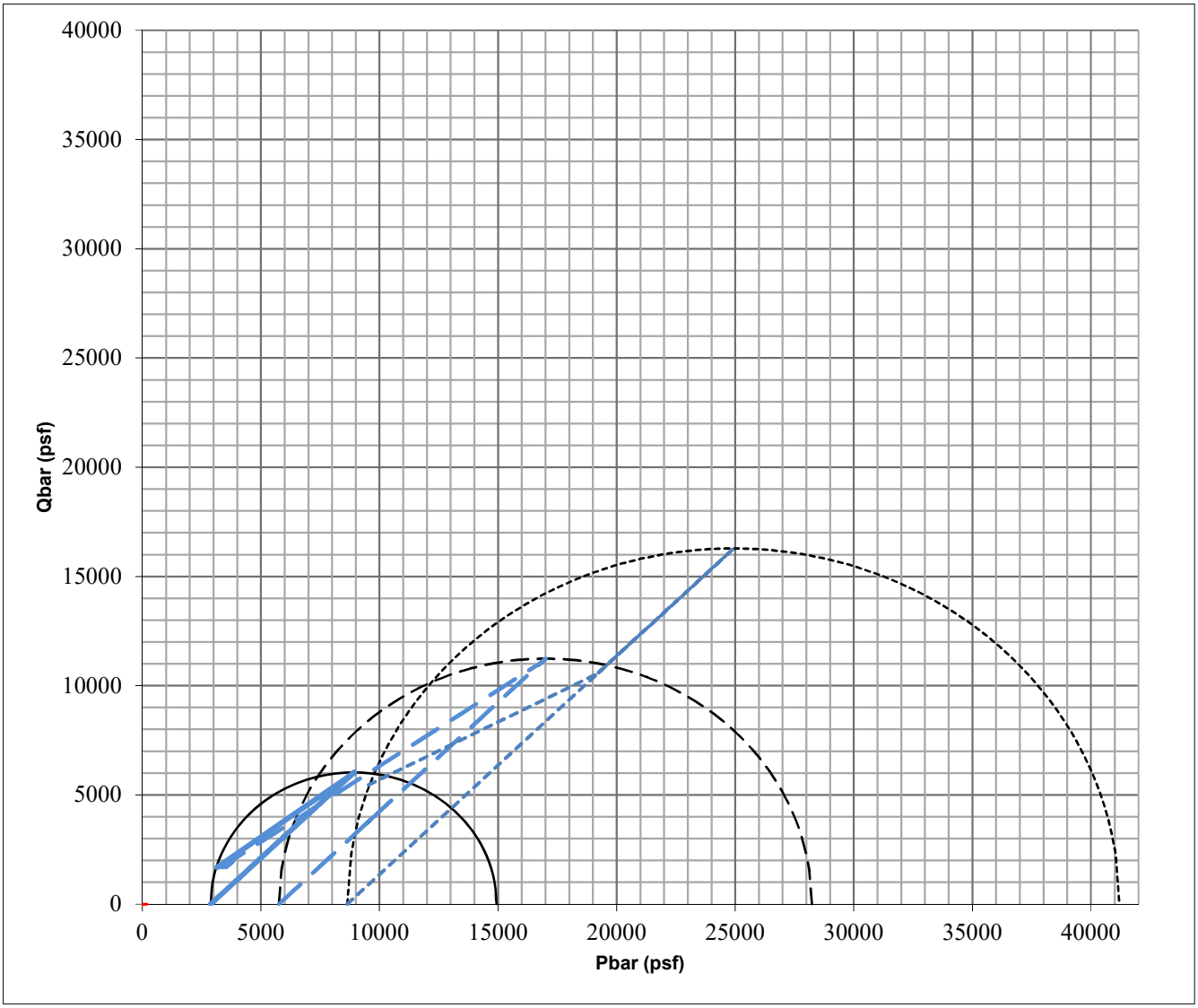
Line Type	Minor Principal Stress at failure (psf) σ_3	Maximum Deviator Stress at failure (psf)	Axial Strain at Failure (%)	Initial Height (in.)	Initial Diam. (in.)	Initial Moisture Content (%)	Initial Wet Density (pcf)	Initial Dry Density (pcf)	Initial Void Ratio	Initial Satura-tion (%)	Specific Gravity (assumed)	Rate of Strain (%/min)	Liquid Limit	Plastic Limit	Height to Diameter Ratio
solid	2016	7568	4.10	5.62	2.40	22.59	129.7	105.8	0.593	102.8	2.70	0.02			2.3
dash	3024	10805	2.60	5.62	2.45	22.59	124.3	101.4	0.662	92.1	2.70	0.02			2.3
dot	4032	13768	2.40	5.62	2.48	22.59	121.3	98.9	0.703	86.7	2.70	0.02			2.3

Client:	**ARUP/RYCG JV**	Boring #:	**BH-02**	Sample #: **2-8B**
Project:	**SFMTA Potrero**	Depth (ft):	**36-36.5**	
Project #:	**260018-00 2018-001**	Soil:	**Brown sand**	

ASTM D-4767	**STAGED TRIAXIAL COMPRESSION CONSOLIDATED-DRAINED**	**TXCD**

Inspection Services Inc.

PLATE NUMBER_____



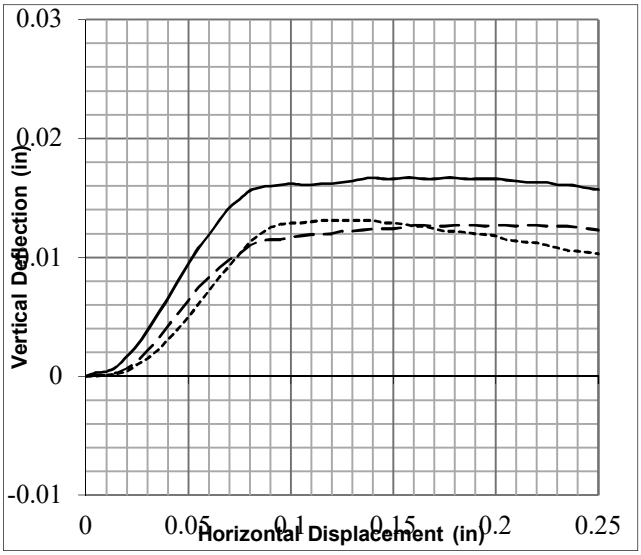
PQ MOHR GRAPH

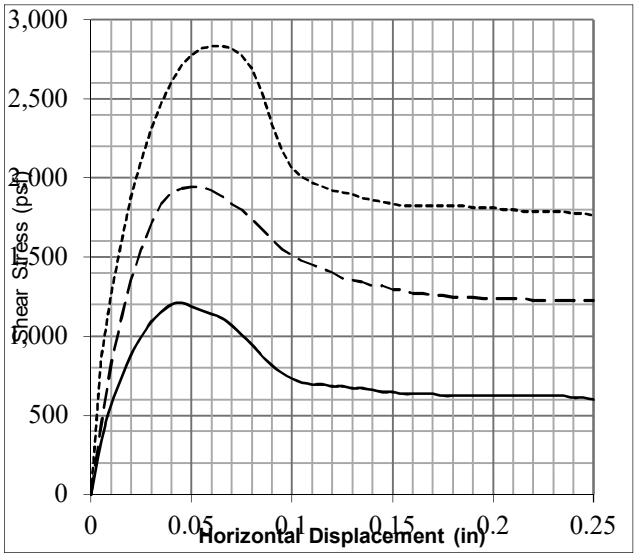
Failure Criteria Maximum Effective σ1 / σ3 ratio

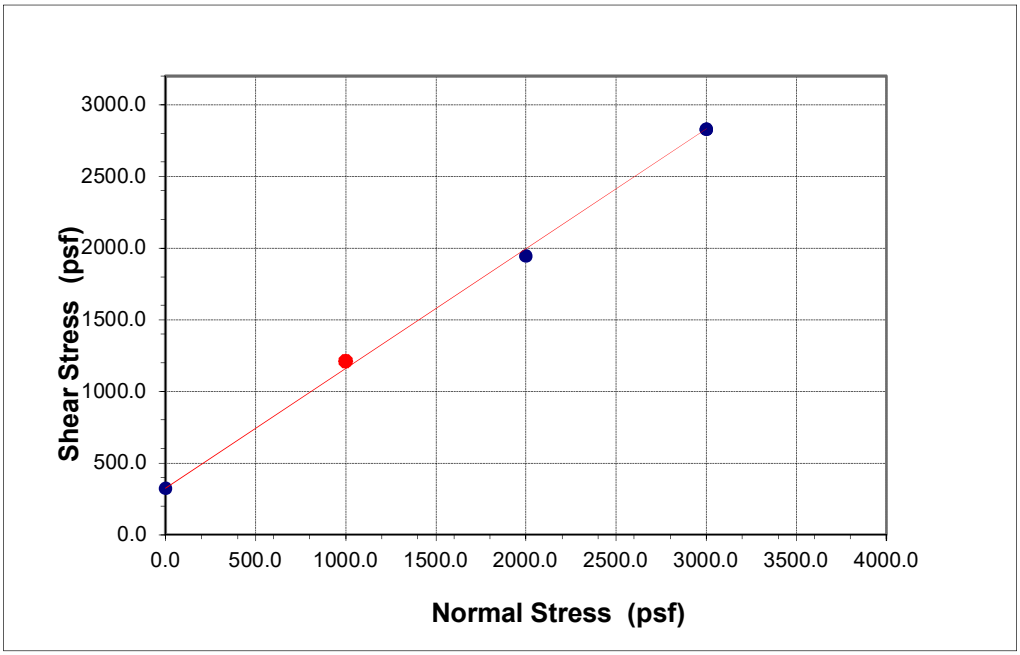
Line Type	Minor Principal Stress at failure (psf) σ_3	Maximum Deviator Stress at failure (psf)	Axial Strain at Failure (%)	Initial Height (in.)	Initial Diam. (in.)	Initial Moisture Content (%)	Initial Wet Density (pcf)	Initial Dry Density (pcf)	Initial Void Ratio	Initial Satura-tion (%)	Specific Gravity (assumed)	Rate of Strain (%/min)	Liquid Limit	Plastic Limit	Height to Diameter Ratio
solid	2880	12055	4.60	5.75	2.40	17.86	134.8	114.4	0.473	101.8	2.70	0.02			2.4
dash	5760	22472	4.10	5.75	2.43	17.86	131.8	111.8	0.507	95.0	2.70	0.02			2.4
dot	8640	32559	3.80	5.75	2.46	17.86	129.0	109.5	0.540	89.3	2.70	0.02			2.3

Client: **ARUP/RYCG JV**	Boring #: **BH-02**	Sample #: **2-11**
Project: **SFMTA Potrero**	Depth (ft): **57-57.5**	
Project #: **260018-00 2018-001**	Soil: **Brown silty sand**	

ASTM D-4767	**STAGED TRIAXIAL COMPRESSION CONSOLIDATED-DRAINED**	**TXCD**







Legend

_____ Test 1

_ _ _ _ _ Test 2

..... Test 3

Results

C = 325 psf

phi = 40 deg.

Gs = 2.70

Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	1212	0.045	0.09	14.0	116.8	86	0.443	1.00	2.416	15.7	117.1	97	0.439	0.998
2	2000	1944	0.050	0.09	14.7	116.6	89	0.446	1.00	2.416	16.2	112.2	87	0.502	1.039
3	3000	2832	0.060	0.09	15.6	116.1	93	0.451	1.00	2.416	16.3	111.4	86	0.513	1.043

Client: ARUP/RYCG JV | **Boring #:** BH-01 | **Sample #:** 1-3B

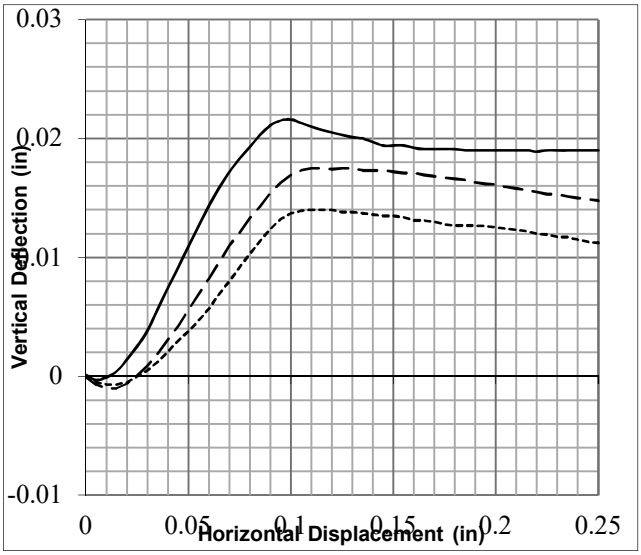
Project: SFMTA Potrero | **Depth(ft)** 11-11.5

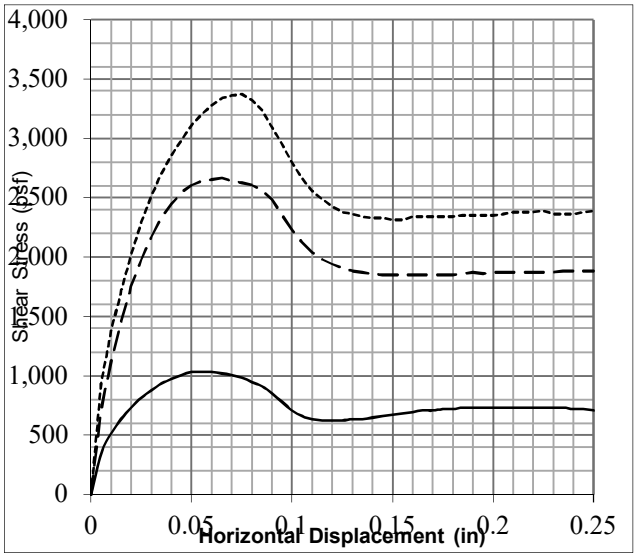
Project #: **260018-00 2018-001** | Soil: **Undisturbed brown clayey sand**

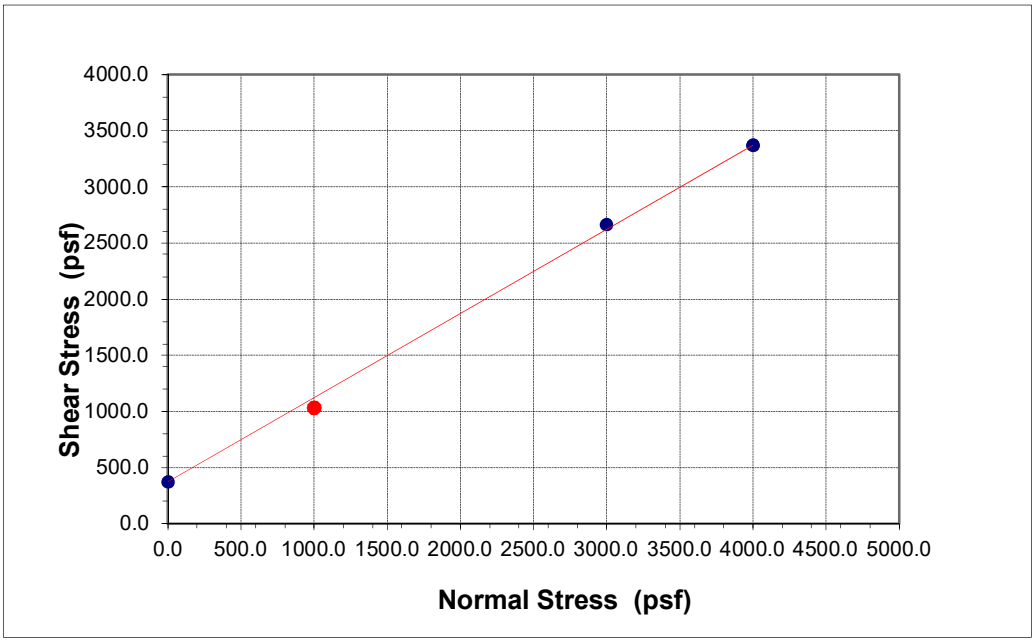
TEST REPORT: **Direct shear - inundated, consolidated, & drained test**

Inspection Services Inc.,

Plate no: _____







Legend

Test 1
Test 2
Test 3

Results

C = 375 psf
phi = 37 deg.

Gs = 2.70
Type = undisturbed

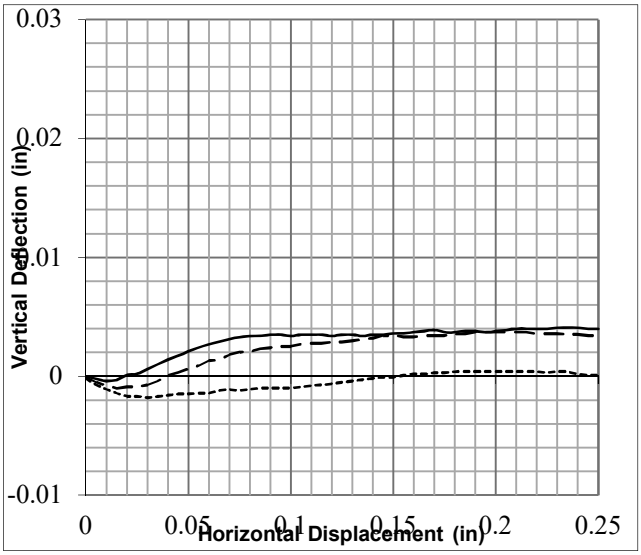
Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	1032	0.050	0.09	17.7	105.9	81	0.592	1.00	2.416	18.1	102.5	76	0.645	1.033
2	3000	2664	0.065	0.09	18.3	104.8	81	0.609	1.00	2.416	19.3	101.8	80	0.655	1.029
3	4000	3372	0.075	0.09	18.2	104.0	79	0.621	1.00	2.416	18.7	105.3	84	0.601	0.988

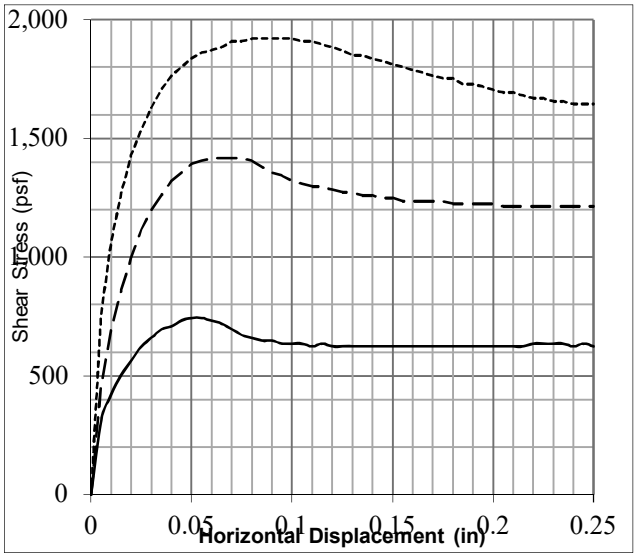
Client: ARUP/RYCG JV | **Boring #:** BH-02 | **Sample #:** 2-9B

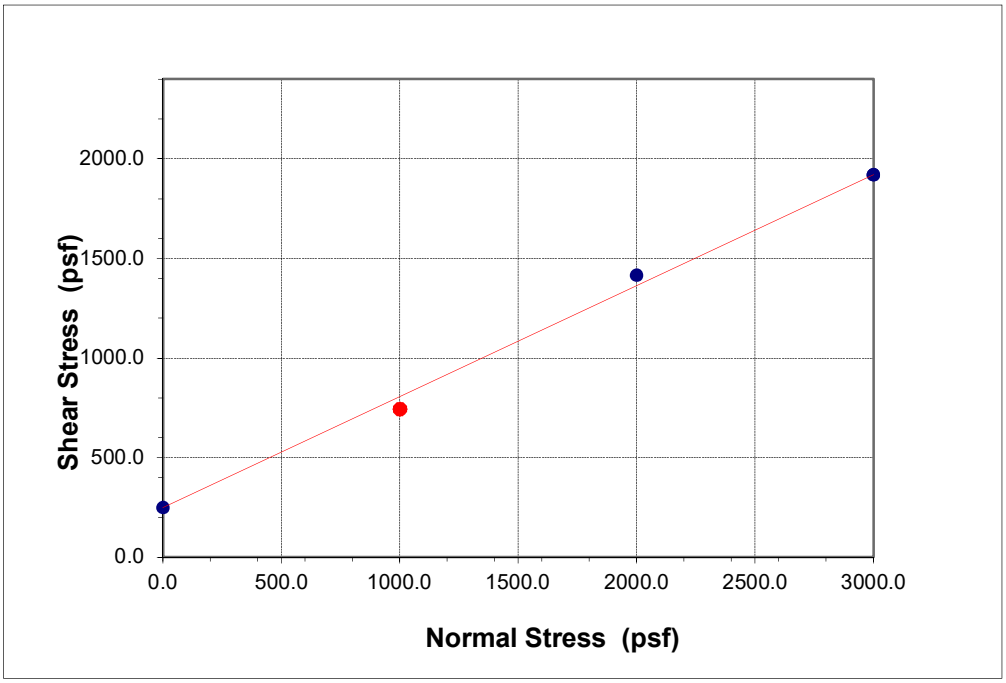
Project: SFMTA Potrero | **DEPTH(ft):** 41-41.5

Project #: **260018-00 2018-001** | Soil: **Undisturbed brown sand**

TEST REPORT: **Direct shear - inundated, consolidated, & drained test**







Legend

Test 1
Test 2
Test 3

Results

C = 250 psf
phi = 29 deg.

Gs = 2.70
Type = undisturbed

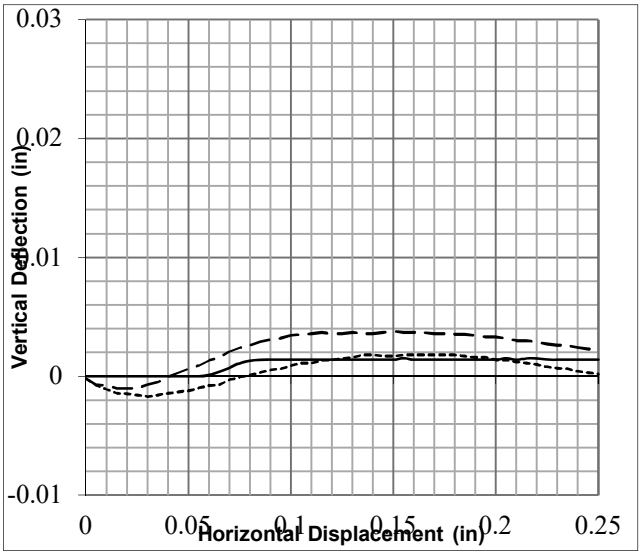
Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	744	0.050	0.09	15.4	111.7	82	0.509	1.00	2.416	15.8	109.8	80	0.535	1.017
2	2000	1416	0.060	0.09	17.4	110.3	89	0.529	1.00	2.416	17.3	107.5	82	0.568	1.026
3	3000	1920	0.080	0.09	19.9	106.3	92	0.585	1.00	2.416	19.9	108.6	97	0.552	0.979

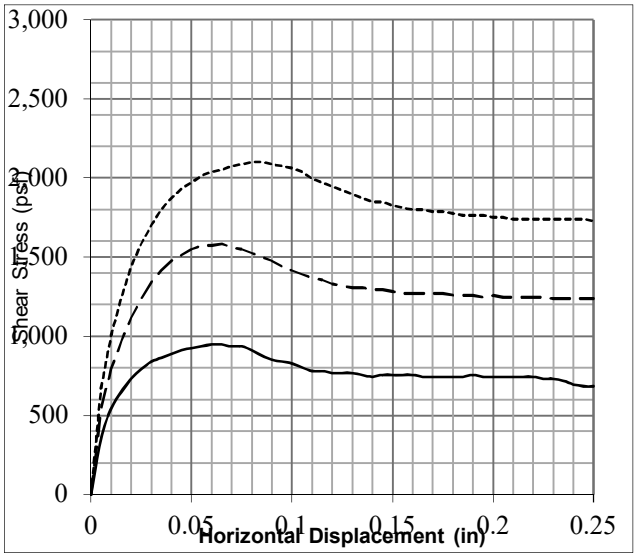
Client: **ARUP/RYCG JV** **Boring #:** **BH-04** **Sample #:** **4-4B**

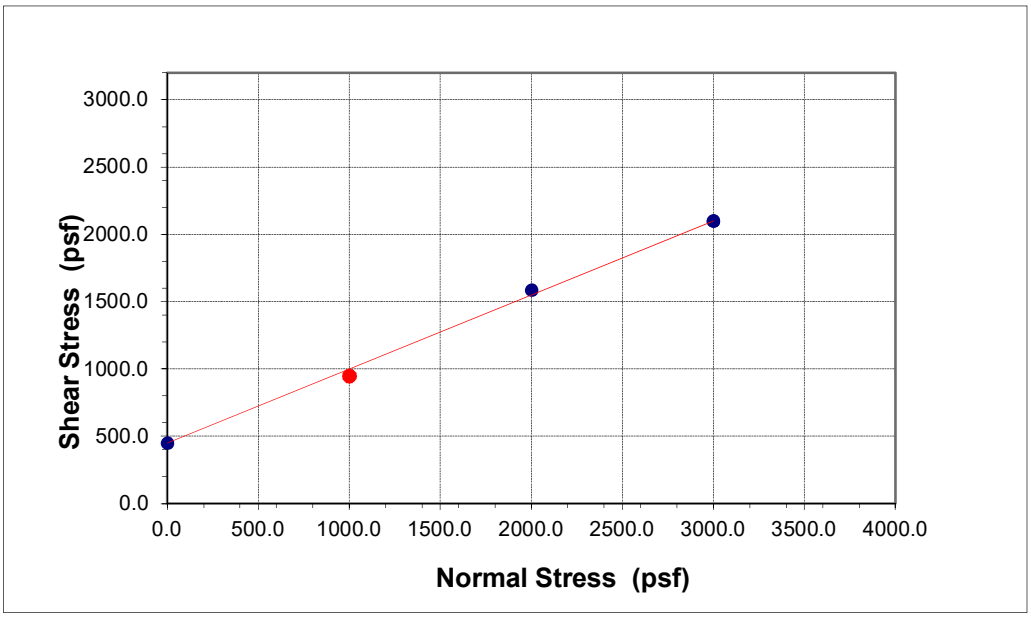
Project: **SFMTA Potrero** **Depth(ft) 15-15.5**

Project #: **260018-00 2018-001** Soil: **Undisturbed reddish brown clayey sand**

TEST REPORT: **Direct shear - inundated, consolidated, & drained test**







Legend

Test 1
Test 2
Test 3

Results

C = 450 psf
phi = 29 deg.

Gs = 2.70
Type = undisturbed

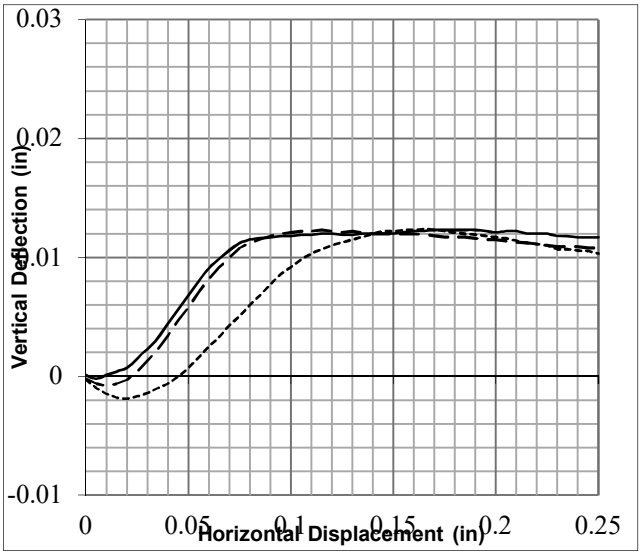
Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	948	0.060	0.09	19.8	106.9	93	0.577	1.00	2.416	20.1	108.1	97	0.559	0.989
2	2000	1584	0.065	0.09	20.0	107.1	94	0.574	1.00	2.416	20.3	105.0	91	0.605	1.020
3	3000	2100	0.080	0.09	20.5	105.6	93	0.597	1.00	2.416	19.9	103.1	85	0.634	1.024

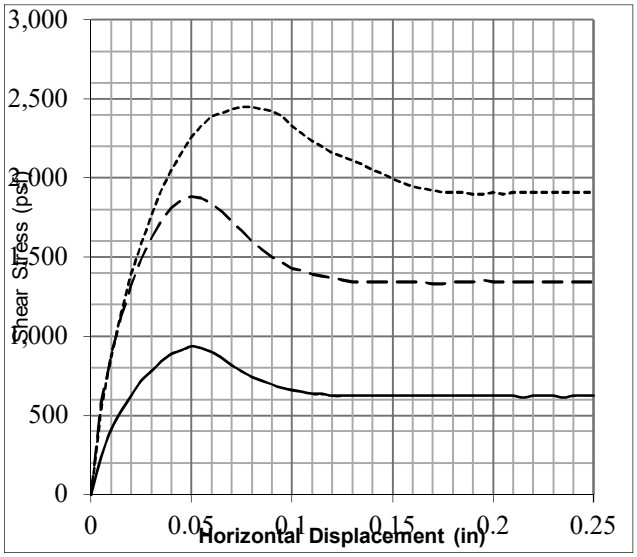
Client: **ARUP/RYCGJV**	**Boring #:** **BH-04**	**Sample #:** **4-5B**
Project: **SFMTA Potrero**		**Depth(ft): 20-20.5**
Project #: **260018-00 2018-001**	Soil: **Undisturbed reddish brown clayey sand**	

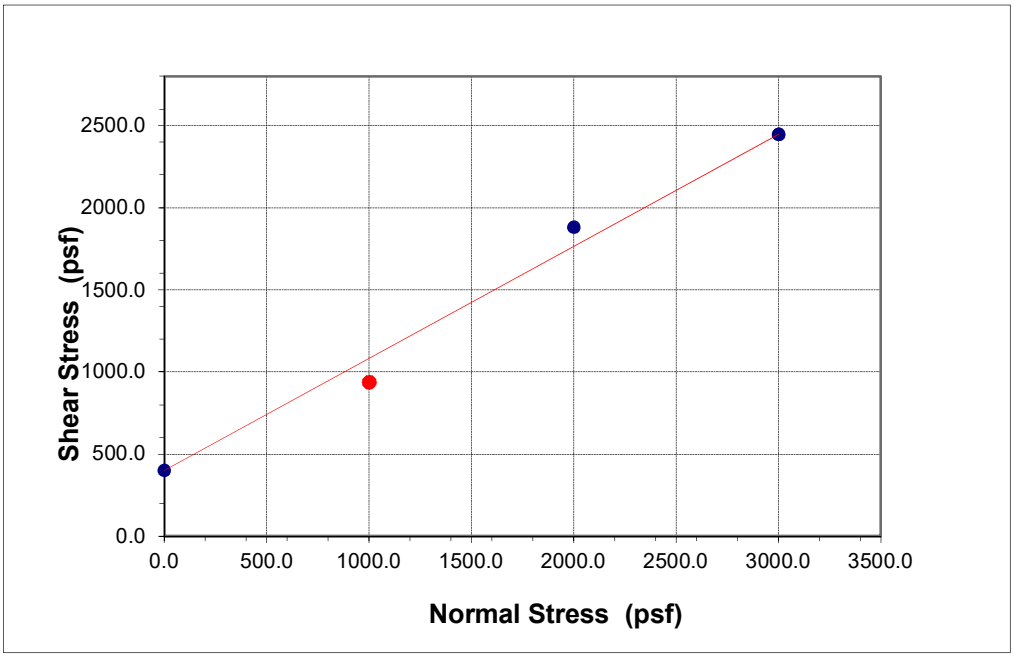
TEST REPORT: **Direct shear - inundated, consolidated, & drained test**

Inspection Services Inc.

Plate no: _____







Legend

_____ Test 1

_ _ _ _ _ Test 2

..... Test 3

Results

C = 400 psf

phi = 34 deg.

Gs = 2.70

Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1000	936	0.050	0.09	19.5	105.1	87	0.603	1.00	2.416	19.7	105.7	89	0.595	0.995
2	2000	1884	0.050	0.09	19.6	105.5	89	0.597	1.00	2.416	20.2	102.0	83	0.653	1.035
3	3000	2448	0.075	0.09	19.7	104.1	86	0.619	1.00	2.416	20.0	100.8	80	0.672	1.033

Client: **ARUP/RYCG JV**	**Boring #:** **BH-06**	**Sample #:** **6-4B**
Project: **SFMTA Potrero**		**Depth(ft): 15-15.5**
Project #: **260018-00 2018-001**	Soil: **Undisturbed brown clayey sand**	

TEST REPORT: **Direct shear - inundated, consolidated, & drained test**

Inspection Services Inc.

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DRAFT

Division 4: Supplemental Design Criteria

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:
Technical Requirements

Division 04:
Supplemental Design Criteria
PDA Appendix E: Technical Requirements

January 16, 2026

FINAL

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Introduction

This Division 4 sets forth supplemental design criteria for the Project. These supplemental design criteria shall apply together with other design criteria and requirements set forth in the Technical Requirements.

As described in Division 1 and elsewhere in the Technical Requirements, the Project must fully enable the design, construction, operations and maintenance of either Joint Development Alternative. While complying with these requirements, the Non-Profit Entity shall demonstrate how possible noise or seismic impacts to each Joint Development Alternative are taken into account and mitigated.

1 Supplemental Acoustic Requirements

The Non-Profit Entity shall comply with these supplemental acoustic requirements in the design of the Project.

1.1 Intent of these Supplemental Acoustic Requirements

Non-Profit Entity shall demonstrate through engineering analysis that the Project's design will comply with the applicable noise requirements included in this Division 4 and Division 3.

Engineering analysis refers to industry-standard or project-specific approaches (with technical back-up) that present the basis and results of airborne source-path-receiver calculations, along with uncertainty estimation.

These supplemental acoustic requirements establish:

1. Project criteria for acoustics ; and
2. Deliverable requirements for the acoustics scope.

The criteria for acoustics are established in the following categories:

Environmental Noise	Includes all systems and operations, which shall be designed to comply with outdoor noise restrictions governed by applicable Laws.
MEP Systems Noise and Vibration	Includes: mechanical, HVAC, electrical, plumbing, vertical transportation, power generation and back-up systems, window cleaning and building maintenance systems, and other specialty systems that may generate noise or vibration.
Building Envelope Sound Isolation / CalGreen	Includes sound isolation performance of the building façade and the remainder of the Infrastructure Facility building envelope, which shall comply with these supplemental acoustic requirements.

Acoustic Separation of Spaces	Includes airborne sound transmission performance of demising constructions separating adjacent spaces. Composite calculations are required for constructions with multi-component floor/ceiling and partition/ door/ window systems. This includes estimation of flanking paths from ductwork, cable-passes and shaft-ways, and project-specific architectural detailing.
Interior Room Acoustics	Includes project requirements for interior room acoustics such as reverberation time and/or occupational noise levels to support the intended programmatic usage of spaces.

1.2 Acoustic Consultant Qualifications

Non-Profit Entity shall, through Substantial Completion, engage the services of a qualified, independent acoustics consulting firm ("acoustic consultant") with a minimum of 10 years of relevant acoustics consulting experience with projects of type and complexity similar to the Project. The acoustics consultant shall have proven and demonstrated capabilities (as demonstrated by a minimum of three projects) in sound isolation, room acoustics, and noise control in buildings. The acoustic consultant shall also have related experience in site testing and commissioning.

1.3 Applicable Codes and Standards

The latest published editions of the following codes and standards are referenced herein and made part of these supplemental acoustic requirements.

1. San Francisco Police Code Article 29
2. California Green Building Standards Code, Ch 5, CALGreen
3. California Uniform Building Code Title 24, with particular attention to Ch 12, Section 1206 Sound Transmission
4. International Code Council (ICC) G2-2010 Guidelines for Acoustics
5. ASHRAE, American Society of Heating, Refrigerating and Air Conditioning Engineers, Fundamentals Handbook
6. NFPA 72

1.4 Acoustics, Noise, and Vibration Criteria

Acoustics, noise, and vibration criteria for the Project are listed below. Non-Profit Entity confirms that design concepts and strategies it develops for the Project will meet these criteria.

For any space type not listed or specified, criteria shall be proposed by the acoustics consultant for the City's review and approval.

1.4.1 Environmental Noise

Design noise emissions from the Project to comply with the noise ordinance and requirements of San Francisco Police Code Article 29.

Consider all non-transportation sound sources from the Project and their impact on existing and future, nearby residential properties. Non-transportation sound sources include locations of loading docks, and outdoor services docks, if any.

1.4.2 Background Noise Criteria from MEP Systems

Designs for mechanical, electrical, and plumbing (MEP) building-system shall comply with the background noise criteria, as defined per occupancy type in the latest published edition of the ASHRAE Fundamentals Handbook.

Designs for occupied spaces shall comply with ASHRAE criteria for background noise level and shall exceed a noise level of NC 50. This is the highest recommended level that still allows for occupants to speak relatively comfortably without raising their voices.

Ductwork velocities shall comply with ASHRAE Fundamentals Handbook Chapter 49, 2019 edition, per room noise criteria.

For spaces that do not require speech communication and are unoccupied but require occasional occupancy (e.g., monitoring, maintenance, etc.), design the MEP systems for a background noise level below 85 dBA in each space, to comply with the lower action limit for OSHA requirements to protect worker noise exposure.

Conduct engineering analysis for background noise level calculations in octave bands or one-third octave bands from 63 Hz to 4000 Hz spectra for each occupied space, inclusive of all system parameters including fan noise, flow-generated noise, self-generated noise of silencers, noise due to terminals, dampers, diffusers, duct breakout, radiated through partitions, structure-borne, and duct-borne noise.

Conduct a 31.5 Hz octave band analysis if there is a reasonable basis to expect high noise levels from very low frequency sources,

Occupied spaces in the Project shall be free of pure tones. A pure tone is defined as an amplitude at any 1/3-octave band center frequency that is 5dB or more above the amplitude of adjacent bands. Manufacturer’s data sheets for MEP equipment shall be assessed by the acoustic consultant to confirm that equipment exhibiting pure tones is not selected.

Emergency generators and similar stand-by equipment such as smoke exhaust or stair pressurization fans shall be designed with noise and vibration control to meet the requirements of applicable local noise ordinance(s) and to limit disturbance to Project occupants during maintenance or testing, including the noise associated with any temporary load banks or load application systems.

Noise levels generated by emergency and stand-by systems shall also be considered in the analysis of emergency evacuation or paging systems that require intelligibility. NFPA-72 shall be referred to for guidance on intelligibility requirements for such systems design.

1.4.3 MEP Systems Vibration Isolation

Vibration isolation of equipment and any associated piping, as well as structural stiffness and deflection requirements of structures supporting MEP equipment shall comply with requirements in ASHRAE Fundamentals Handbook Chapter 49, 2019 edition.

1.4.4 Building Envelope Sound Isolation

The Project's façade and building envelope shall comply with the requirements of California Green Building Standards Code, Ch 5, CALGreen and California Uniform Building Code Title 24, with particular attention to Ch 12, Section 1206 *Sound Transmission*.

Acoustical control measures shall apply to all regularly occupied interior spaces, including but not limited to offices, conference rooms, and other gathering areas. The building envelope shall be designed to meet the minimum Sound Transmission Class (STC) or Outdoor-Indoor Transmission Class (OITC) ratings as required under CALGreen Section 5.507.4, based on the project's environmental noise exposure.

Industrial spaces or other areas not intended for regular human occupancy, and which are not exposed to significant exterior noise sources, may be exempt from these acoustical requirements. Such exemptions are subject to confirmation by the Authority Having Jurisdiction (AHJ) or the project's code consultant, in accordance with CALGreen Section 5.507.4 Exception.

1.4.5 Acoustic Separation of Spaces and Interior Room Acoustics

Requirements for acoustic separation between demising spaces shall meet minimum standards for Class A office space in San Francisco. This includes, at minimum:

1. Open plan workspace "normal" speech privacy
    a. background Noise: NC 40 maximum
    b. electronic sound masking: 40 to 45 dBA if background noise levels are calculated to be less than NC-35 on average.
    c. Sound absorbing ceiling of NRC 0.70 Minimum (ASTM C423, Type E-400 mounting)
2. Offices and meeting rooms "normal" speech privacy
    a. background noise: NC 35 maximum
    b. minimum noise reduction of partitions: NIC 35 Minimum with sound masking and NIC 40 minimum without sound masking (noise isolation class defined per ASTM E336)
    c. sound absorbing ceiling of NRC 0.80 minimum (ASTM C423, Type E-400 mounting)
    d. sound absorbing wall panels on 25% of walls of NRC 0.70 minimum (ASTM C423, type-A mounting)
3. Private offices and meeting rooms "confidential" speech privacy
    a. background noise: NC 30 maximum
    b. noise reduction of partitions: NIC 45 minimum

c. provide absorption of NRC 0.80 minimum on 25% of walls

1.5 Proprietary Design Deliverables

In addition to the requirements in Division 1, Section 1.8.5, the following sections describe the Design Deliverables required at each stage of the design specified in Division 1, Section 1.8.5.2.

1.5.1 50% Design Development

Non-Profit Entity shall prepare and submit the following in the 50% Design Development package:

1. Acoustic criteria per program space. Identify acoustically sensitive spaces.
2. Demonstrate compliance with acoustic criteria, including:
    a. Background noise calculations for acoustically-sensitive program space types, providing proof of design compliance.
    b. Verify compliance with prescriptive sound isolation and room acoustics criteria for acoustically-sensitive spaces.
3. Register of risks and critical path items in the Project design related to achievement of acoustic criteria, including recommendations for resolution of the same.
4. Coordinated design to meet acoustics criteria with all related disciplines (architectural, structural, mechanical, etc.).

All noise control specifications that relate to these noise calculations shall be included in the written specifications for mechanical vibration and seismic control provided in a schedule in the Design Documents.

1.5.2 100% Design Development

Non-Profit Entity shall prepare and submit the following in the 100% Design Development package:

1. Updates to acoustic criteria per program space, identifying changes from the prior design deliverable.
2. Demonstrate compliance with acoustic criteria, including:
    a. Background noise calculations for each program space type, providing proof of design compliance.
    b. Sound isolation and room acoustics proof of design compliance for each category of acoustic privacy.
3. Register of risks and critical path items in the Project design related to airborne noise, including recommendations for resolution of the same.
4. Coordinated design to meet acoustics criteria with all related disciplines (architectural, structural, mechanical, etc.).

All noise control specifications that relate to these noise calculations shall be included in the written specifications for mechanical vibration and seismic control provided in a schedule in the Design Documents.

1.5.3 50% Construction Documents

Non-Profit Entity shall prepare and submit the following in the 50% Construction Documents package:

1. Updates to acoustic criteria per program space, identifying changes from the prior design deliverable.
2. Proof of design compliance and detailed calculations, as necessary, with an executive summary that demonstrate compliance with airborne noise acoustic criteria.
3. Coordinated design to meet acoustics criteria with all related disciplines (architectural, structural, mechanical, etc.).

All noise control specifications that relate to these noise calculations shall be included in the written specifications for Mechanical Vibration and Seismic Control provided in a schedule in the Design Documents.

1.5.4 90% Construction Documents

Prepare and submit the following in the 90% Construction Documents package:

1. Final acoustic criteria per program space.
2. Final summary documentation and detailed calculations, as necessary, demonstrating full compliance with criteria related to airborne noise.
3. Final coordinated design to meet acoustics criteria with all related disciplines (architectural, structural, mechanical, etc.).

Include final noise control specifications that relate to these noise calculations in the written specifications for mechanical vibration and seismic control and/or provided in a schedule on the Project drawings.

1.5.5 Construction Administration

Confirm any changes to the Construction Documents made during construction remain compliant with the acoustics, noise, and vibration criteria.

Submit to the City a testing report with validating measurements demonstrating the acoustics, noise, and vibration criteria are met in all program spaces including:

- Background noise
- Speech privacy
- Structure-borne noise

Perform testing based on available industry standards. Submit a request for information to the City for any clarification request related to testing requirements.

2 Seismic Resilience Performance Requirements

A high level of seismic resilience is required for the Project, both due to the SFMTA's role in emergency response and due to its interest in owning, operating, and maintaining a durable capital asset. Building codes aim for life safety but do not necessarily address resilience, which is the ability of a building to support its core functions quickly after an earthquake. Seismic resilience encompasses not just the structural performance of a building in an earthquake but also the performance of architectural, mechanical, electrical, plumbing, and other systems required to support those functions.

The seismic resilience requirements presented in this document draw on the recommendations from a 2009 report by the San Francisco-based think tank SPUR.[1] This report outlines desirable recovery scenarios for the San Francisco civic infrastructure following a major earthquake. Regarding the SFMTA transit system, the report recommends that "service [be] restored for 90 percent of MUNI customers" within 30 days of an "expected earthquake," which is defined as an earthquake event having 10% probability of occurrence in 50 years.

The SPUR report does not specifically address bus maintenance facilities such as the Project's Infrastructure Facility. It is expected that buses themselves may be able to run immediately after such an earthquake, while the facilities that support transit operations might lose some functionality temporarily. However, functionality of such support facilities must soon be restored to maintain bus service. Hence it is judged that the Infrastructure Facility should be operational within that 30-day period of the event if 90% of bus service is to be achieved.

Consistent with the SPUR report, these seismic criteria define functionality requirements for a seismic hazard level given by an earthquake event having 10% probability of occurrence in 50 years, otherwise known as a 475-year event. In these criteria this seismic level is termed the "design-level" event.

An additional structural performance target is defined for a much larger event known as the maximum considered earthquake (MCE_R). This event may be expected to cause more damage and consequent loss of functionality. The California Building Code targets a maximum 10% probability of collapse in the MCE_R event for most buildings. A higher level of performance in the MCE_R is not necessary for the Facility.

It is the responsibility of the Non-Profit Entity to:

- Clearly define phases of development, if any, and the Project scope(s) to be implemented in each phase; and,
- Develop the design and engineering analyses that demonstrate compliance with the seismic resilience criteria set forth herein for each and every phase of the Project's development.

[1] San Francisco Bay Area Planning and Urban Research Association (SPUR), "Lifelines: Upgrading Infrastructure to Enhance San Francisco's Earthquake Resilience," https://www.spur.org/sites/default/files/publications_pdfs/SPUR_Lifelines.pdf

The above objectives are translated into specific requirements in the following sections. The resilience standard for this Project exceeds the code design standard in many areas; however, it should be noted that this resilience standard does not replace full compliance with the governing building code.

The technical requirements in the following Sections 2.1 through 2.8 are contingent upon a design with the following characteristics:

- The structural engineer of record is Magnusson Klemencic Associates (MKA).
- The lateral system consists of special reinforced concrete shear walls at the perimeter of the facility on all four sides.
- The building plan dimensions are approximately 480' x 400'. The building plan dimensions shall not exceed an aspect ratio of 1.4:1.
- The building height does not exceed five stories, including any full or partial basement levels.

2.1 Resilience Requirements

The Project's resilience requirements are stated qualitatively as follows in terms of expected performance at two levels of seismic hazard:

4. Immediate re-occupancy of the Infrastructure Facility after the resilience-level event ("green tag" expected)
5. Recovery of essential functionality of the Infrastructure Facility within 30 days after the resilience-level event
1. Maximum 10% probability of collapse of the Project in an MCE_R seismic event

The required approach to attaining these requirements is described in greater detail in the following sections. The seismic hazard levels are defined in Section 2.3 (*Seismic Hazard Definition*).

2.2 Compliance Standard

These seismic resilience requirements adopt the system outlined by the Resilience-based Earthquake Design Initiative (REDi). A copy of this standard can be downloaded free of charge.[2] Other systems of equivalent intent and approach may be used upon review and approval by the City.

In keeping with the resilience requirements stated in Section 2.1 (*Resilience Requirements*) above, the Project's resilience requirements are as required for REDi Gold Level, except as modified in this document.

[2] Arup, "REDi Rating System: Resilience-based Earthquake Design Initiative for the Next Generation of Buildings," Version 1.0, October 2013, https://www.arup.com/perspectives/publications/research/section/redi-rating-system

2.3 Seismic Hazard Definition

The resilience-level earthquake is represented by an elastic acceleration response spectrum having 10% probability of exceedance in a 50-year period (475-year return period) based on a site-specific probabilistic seismic hazard analysis (PSHA). The MCE_R event shall be as defined by the California Building Code and its referenced standard ASCE 7, having a site-specific PSHA response spectrum with deterministic cap. The spectra shall incorporate damping as appropriate for the type of structure to be designed and the level of damage expected under the two hazard levels.

The Design Earthquake (DE) response spectrum as defined by the California Building Code may not match the resilience-level response spectrum for all building periods at this site. The DE seismic hazard shall be utilized for confirming compliance with all code requirements, but shall not be used in lieu of the resilience-level seismic hazard. For evaluating structural and non-structural performance according to Section 2.5 (*Structural and Non-Structural Performance Requirements*), as well as for loss and downtime assessments according to Section 2.6 (*Loss and Downtime Assessment*), the resilience-level earthquake shall be used.

A structure designed solely according to code requirements will likely not meet the resilience requirements under the resilience-level earthquake. Therefore, the design team shall check these requirements at various stages of the design to ensure that appropriate decisions are made in a timely manner.

2.4 Structural Analysis Method

Any structural analysis method permitted by ASCE 41-23 can be used to validate the compliance with structural portions of requirements in Section 2.5 (*Structural and Non-Structural Performance Requirements*). The nonstructural performance requirements of Section 2.5 (*Structural and Non-Structural Performance Requirements*), as well as loss and downtime assessment according to Section 2.6 (*Loss and Downtime Assessment*) shall be validated using linear or nonlinear response history analysis (LRHA or NLRHA). LRHA or NLRHA involves developing a detailed digital model of the Project's structural system and simulating the building's response to earthquake ground motions ("time history records") that have been selected specifically to match salient characteristics of the Project Site and nearby source faults.

Deliverables and their timeline are set forth in Section 2.8 (*Timeline of Deliverables*).

Time history records shall comply with ASCE 7 provisions. For NLRHA, expected material properties may be used where appropriate and as defined in ASCE 41. Nonlinear analysis guidelines given by NIST GCR 17-917-45, "Recommended Modeling Parameters and Acceptance Criteria for Nonlinear Analysis in Support of Seismic Evaluation, Retrofit, and Design," are considered acceptable.

LRHA or NLRHA need not be used for calculations to validate code compliance, unless required by the code.

2.5 Structural and Non-Structural Performance Requirements

In addition to code requirements for structural and nonstructural components, the performance requirements shall be as set forth in this Section 2.5.

The structural system of the Infrastructure Facility shall meet immediate occupancy (IO) performance as defined by ASCE 41-23 subject to the resilience-level earthquake. This performance level shall be deemed to satisfy the requirement of Section 2.2.4 of the REDi standard referenced above. This performance can be verified using any analysis method permitted by ASCE 41-23.

The structural system of the Infrastructure Facility shall additionally meet collapse prevention performance as defined by ASCE 41-23 subject to the MCE_R hazard. This performance can be verified using any analysis method permitted by ASCE 41-23.

Non-structural performance for components necessary to the operations of the Infrastructure Facility shall meet, as a minimum, the operational nonstructural performance level as defined by ASCE 41-23 subject to the resilience-level earthquake. This includes meeting all requirements of ASCE 7-22 for components with $I_p = 1.5$. Compliance with this requirement shall be confirmed using mean accelerations and displacements derived from LRHA or NLRHA.

Additionally, equipment required to be operational for resumption of the Infrastructure Facility's transit functions (as defined in Section 2.6 (*Loss and Downtime Assessment*)) shall be seismically certified according to the requirements specified in ASCE 7-22 Section 13.2.6 with performance as required by ICC AC-156 for $I_p = 1.5$. Other alternatives to seismic certification that can be confirmed to support functionality within the required recovery period may be used upon review and approval by the City.

2.6 Loss and Downtime Assessment

Non-Profit Entity shall conduct a downtime assessment as described in Section 4.3 of the REDi standard (referenced above) to confirm that the Project's requirement for post-earthquake recovery is met. The methods, assumptions and results of this assessment shall be documented in a written report as indicated in Section 2.8 (*Timeline of Deliverables*). This assessment shall utilize building response parameters extracted from the response history analysis at the resilience-level earthquake. The downtime assessment results shall be reported and compared to the acceptance criteria at the 75% confidence level.

The direct financial loss assessment described in Section 4.2 of the REDi standard may be omitted.

The downtime assessment may, but need not, utilize the PACT software which is mentioned in the REDi standard. It is permitted to use commercial software SP3 by HBRisk, and use ATC-138 downtime modulus to assess the downtime. If this approach is used, it is required to perform additional component specific checks. In this check, all components required for function are verified to not exceed 10% probability of preventing function longer than 30 days at the resilience-level earthquake. These results are readily available in the SP3 "Functional Recovery Report".

For this analysis, functional recovery shall be achieved when the following systems are functional:

- Fire protection systems and fire-rated barriers
- Sanitary sewer and storm drain systems
- Power and lighting systems
- Domestic hot and cold water systems
- Bus maintenance equipment as determined essential for operations (see below)
- Access controls systems
- Security systems

The Non-Profit Entity shall produce a document which identifies all equipment which is essential to carry out normal operations of the bus system. For each such item, the document shall establish a strategy for ensuring that the equipment will resume necessary functionality within 30 days of the resilience-level event. Strategies may include the provision of seismically certified or redundant equipment.

In order to meet the REDi Gold standard, only aesthetic damage to the above systems shall be permissible immediately after the design earthquake, unless Non-Profit Entity can demonstrate that a given component in the above systems can be easily and readily replaced to achieve the same functional recovery criterion.

In January 2020, a City ordinance banned the use of natural gas in new construction. In addition, in the event of a large earthquake the City's existing supply of natural gas will very likely be disrupted for a period of time that is greater than the Project's required functional recovery time. For both of these reasons natural gas will not be permitted for the Project's systems which provide the above essential functions.

2.7 Seismic Resilience Peer Review

The City will retain a seismic resilience peer review consultant to perform the following scope of work:

1. Review of basis of design document, which shall include design criteria for structural and non-structural components
2. Review of structural analysis model assumptions and methods
3. Review of seismic hazard and ground motions used for analysis
4. Review of downtime assessments
5. General review of seismic system and non-structural design and detailing

The peer reviewer will be periodically engaged by the City to confirm design intent is being met. Non-Profit Entity shall prepare and submit deliverables, as described in Section 2.8 (*Deliverables and Timeline for Seismic Resilience Peer Review*), to the City for review and approval.

The Non-Profit Entity shall support the peer review process (e.g., by working with the peer review team and incorporating their comments) and incorporate the appropriate peer review check points into the PA Term.

The seismic resilience peer review does not replace any code mandated structural peer review.

2.8 Deliverables and Timeline for Seismic Resilience Peer Review

Deliverable	Design Stage	Seismic Resilience Peer Review Actions
Structural drawings showing all sizes and representative connection details for elements of the primary seismic force resisting system. Draft of Basis of Design Documents including narrative of how resilience criteria will be met. Draft of downtime assessment report including structural components and software prepopulated nonstructural components. It is permitted to use simplified analysis or software default values for EDPs. Seismic Certification Plan (component identification only) – identification of all nonstructural components required for essential functionality.	100% SD+	Confirmation that design meets design criteria and preliminary downtime assessment results are presented to validate required performance. SEOR and resilience lead (if different), and the City's resilience peer review consultant will meet at regular informal check-ins to review design progress leading to 100% SD+ deadline.
Structural Drawings showing final configuration and sizing of seismic force resisting system and related details. Basis of Design Documents including narrative of how resilience criteria are met.	50% DD	Confirmation that design meets design criteria. SEOR and resilience lead (if different), and the City's resilience peer review consultant will meet at regular informal check-ins to review design progress leading to 50% DD deadline. If nonstructural component and system design needs to be performed for permit submittal by this milestone as well, all deliverables required for 100% DD shall be moved to this milestone.
Documents presenting how nonstructural demands and requirements will be communicated to specialty designers (structural or other discipline drawings, general notes, specifications). Final Basis of Design Documents including final LRHA or NLRHA results, and downtime assessment report. Seismic Certification Plan. This plan shall include, for each nonstructural component required for essential functionality, one of the following information:	100% DD	Confirmation that basis of design meets design criteria, and that sufficient NLRHA and downtime assessment results are presented to validate required performance. Confirmation that the Seismic Certification Plan meets the intent of the resilience standard.

Deliverable	Design Stage	Seismic Resilience Peer Review Actions
• Required testing procedure including project specific testing plan, or • approvals based on past test results such as HCAI OSP or similar, or • Alternative approach with confirmation that the component will be operational within the required recovery time. The Seismic Certification Plan shall include a feasible timeline for carrying out the planned procedures that is compatible with the overall Project schedule.		
Structural Drawings showing final configuration and sizing of seismic force resisting system and related details. Final Seismic Certification Plan, including any revisions to the 100% DD document and the status of planned testing.	90% CD	Confirmation that no changes are made from the 100%DD structure/resolved peer review, including the Seismic Certification Plan, that materially alter the agreed design intent, unless accompanied by a new validation package (as required and specified above at the 100% DD stage).

Division 5: Battery-Electric Bus Supplemental Criteria

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:
Technical Requirements

Division 05:
Battery-Electric Bus Supplemental Criteria

January 16, 2026

FINAL

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1. INTRODUCTION

This Division 5 includes the Technical Requirements and planning criteria to enable a future transition of the Project's Infrastructure Facility from supporting electric trolley buses (ETB) to supporting battery electric buses (BEB) while maintaining operational flexibility and minimizing disruptions.

The City's current fleet management strategy is to open the Project with a 100% ETB fleet and operate those initial vehicles through their useful lifetimes before potentially beginning the BEB transition at the City's discretion. This places the potential initial deployment of BEBs likely to begin no sooner than 2040.

The Technical Requirements for the BEB Charging Equipment solution and the associated electrical feed requirements described herein (refer to Section 2.2 and Exhibit B) provide the minimum design requirements for the potential, future deployment of BEB to be served by the BEB Charging Infrastructure.

Non-Profit Entity shall design and construct the BEB Charging Infrastructure per the requirements in this Division 5. This includes but is not limited to the designed and maintained space for electrical distribution from the existing and future electrical feeds to the BEB Charging Equipment and charging positions, design and installation of wireways and raceways in the bus parking areas to allow for seamless transition to BEBs upon the staged transition from the overhead catenary system, and the Project to fully support the operational requirements of the detailed charging system below upon the City 's direction to deploy the system at a date of their choosing.

As further detailed in Section 2.2 of this Division 5, two electrical utility feeds are projected to serve the Infrastructure Facility upon the transition and deployment to BEB. The initial feed, for mixed-use service is indicated on WDT application as feeder 2, shall be in place at the time of Substantial Completion and will serve the needs of the entire Infrastructure Facility and all building functions except for the final one hundred twenty-eight BEB charging positions required for the ultimate BEB fleet projected.

The second feed, for BEB charging service is indicated on WDT application as feeder 1, may not be energized at the Project Site upon Substantial Completion, but Non-Profit Entity shall provide all of the space, building systems, conduit pathways, penetrations, wireways, raceways, and all other considerations necessary to enable distribution into, throughout, and within the Infrastructure Facility to facilitate its operation upon implementation and connection of this feeder 1.

This Division 5 contains detailed information on the City's BEB conversion planning and describes:

1. Envisioned implementation of BEB support infrastructure in the City's bus facilities in general, and in multi-level bus facilities in particular.
2. Specific approach to BEB improvements for this Project, including fleet conversion plans, and site-specific information that will assist Non-Profit Entity to deliver the City's vision during the Term.

For the purposes of designing the Infrastructure Facility and developing cost, schedule, and risk analyses, and during the Term, the Non-Profit Entity shall adhere to the following definitions and categories:

- **BEB Charging Infrastructure**: means the necessary layout space and clearances for future switchgear, power distribution systems (including any required feeders), housekeeping pads, housings, integrated structural components, space for mounting solution(s), and associated wire ways, conduit, and cable trays; space and penetrations for the required routing layout to support the future charging system's associated IT cabling (whether fiber optic or of other types), as set forth in Division 5 of the Technical Requirements.

Regardless of the design approach, the Charging Infrastructure shall include all Infrastructure Facility improvements installed upon Substantial Completion that enable the future deployment of BEBs and the proposed Charging Equipment detailed in this Division 5 without invasive or destructive measures needed to do so. The design of the facility structure shall adequately account for the weight requirements of the proposed future charging and electrical equipment. There shall be no major additional capital improvements needed to run the BEB system, unless agreed to and approved by the City, in its sole discretion to install those BEB Charging Infrastructure equipment and electrical distribution systems mentioned above. Charging Infrastructure feeds and supports the Charging Equipment, as described in the next item in addition to the BEB Emergency Power requirements defined in Section 2.3.

- **BEB Charging Equipment**: means the future overhead inverted pantographs, charging cabinets, dispensers, switchgear and associated wire ways, conduit, and cable trays that provide the point-to-point contact where individual BEBs connect to the overall charging system.

The BEB Charging Equipment must be capable of being connected to the BEB Charging Infrastructure to enable charging of a BEB fleet according to the performance requirements defined in this document and according to the City's BEB fleet growth plans. The BEB Charging Equipment shall include the charge management/operations software solution (including the Electric Vehicle Charge Management System) to enable the Infrastructure Facility to successfully operate a BEB fleet, meeting the requirements set forth by the City at the time of their future BEB deployment. The inclusion of BEB Charging Equipment in this Agreement is expressly excluded, and its inclusion shall be contingent upon the City 's sole discretion to determine future scope.

The interface point between the BEB Charging Infrastructure and the BEB Charging Equipment shall be the termination point of all wire ways, conduit, and/or cable trays to the charging cabinets or future location of charging cabinets.

1.1. Background

Per the California Air Resources Board's Innovative Clean Transit regulations, the City must convert to a zero-emission bus fleet by 2040. To enable this transition, the City drafted a Zero Emission Facility and Fleet Master Plan (Zero-Emission Plan) through a partnership with WSP USA, Inc. The Zero-Emission Plan provides a roadmap for the City's successful facility and infrastructure transition and upgrade, and will position the City to put these capital projects forward for capital funding that may become available in the future for BEB facility projects.

The City currently operates the largest fleet of zero emission ETBs in North America. The City plans to transition all routes that are currently served by diesel/hybrid buses fully with BEBs; this move requires converting all of the City's existing bus maintenance facilities into facilities capable of charging, maintaining, and operating these vehicles.

The requirements in this Division 5 are based on current information available to the City and may be updated by the City from time to time.

As part of the City ’s goal to achieve a 100% zero-emission fleet by 2040, the City will begin the large-scale procurement of BEBs in or around 2025.

Through the Zero-Emission Plan, the City is carefully charting a schedule for the adoption of new vehicles, gradual retirement of existing coaches, overhaul of existing facilities, and integration of BEB Charging Infrastructure.

1.2. 2021 SFMTA 40-Foot BEB Pilot Program

Since 2021, the City has been conducting a pilot program to evaluate the performance, reliability, operability, and maintainability of the 40-ft BEBs that are currently available on the market, and to gain experience with BEB Charging Infrastructure to prepare for future fleetwide adoption (the “2021 40-ft Pilot”). The City anticipates the conclusion of this pilot program in mid-2024.

The City expects that the 2021 40-ft Pilot will provide valuable insight into the state of the BEB market and that the conclusion of the 2021 40-ft Pilot will pave the way for successful adoption of 40-ft BEB as part of the City ’s future BEB procurement strategy.

The City is in the preliminary stages of implementing a 60-ft BEB pilot to evaluate the feasibility of those vehicles in the City ’s operating environment; bus procurement for this pilot program is scheduled to begin in 2025.

As part of the 2021 40-ft Pilot, the City procured three 40-ft BEBs each (total of nine) from New Flyer, BYD, and Proterra, and one 40-ft BEB from Nova in summer 2021, with two additional Nova Bus 40-ft BEBs scheduled to be delivered by the end of 2023. These buses will be tested in regular revenue service in San Francisco for a period of 18 months. Upon the conclusion of the 2021 40-ft Pilot, the City will develop guidance on the following topics:

1. Which existing 40-ft BEB models can meet the City ’s service requirements.
2. The routes and service roles, if any, that cannot be serviced by BEBs.
3. The maintenance requirements and practices for a BEB fleet.
4. The replacement ratio that will be required when transitioning from diesel hybrid buses and trolley buses to BEBs.
5. Which specifications and requirements (battery capacity, ground clearance, telematics systems, etc.) will be kept or modified for future full-scale procurements.
6. The charging methodology and operating profile required for sustained operation of BEBs in full-scale deployment.
7. Optimum bus yard storage and yard management practices.

2. BEBS AT POTRERO YARD

Potrero Yard currently houses 146 trolley buses: 53 40-ft buses and 93-60ft buses.

If and when the City directs the transition to BEBs in the future, the Infrastructure Facility shall accommodate the vehicle size and type specified in Exhibit A (*Battery-Electric Bus Specification*) of this Division 5 at a minimum. The BEB fleet shall be parked in a contiguous area in the Infrastructure Facility's allocated bus parking layout, unless agreed to and approved by the City, in its sole discretion.

Table 1 shows the capacity and fleet size allocation for the Project upon Substantial Completion. **Table 2** below shows the total planned capacity for the Project after the Infrastructure Facility is fully transitioned to BEBs.

Moving from the fleet capacities shown in **Table 1** to those in **Table 2** will require the City to perform off-site fleet management to move some 40-ft vehicles offsite, over time, to accommodate more 60-ft vehicles at Potrero Yard. It will also require modifications to the location of the overhead BEB charging equipment to serve the fleet in use at a given time.

Table 1: Potrero Bus Fleet Capacity upon Substantial Completion of the Infrastructure Facility

Location	BEBs		ETBs		Total Buses
	40'	60'	40'	60'	
Potrero Bus Yard	0	0	138	93	231

Table 2: Potrero Bus Fleet Capacity After Fully Transitioning to BEBs (no sooner than 2040)

Location	BEBs		ETBs		Total Buses
	40'	60'	40'	60'	
Potrero Bus Yard	53	160	0	0	213

2.1. BEB Power Supply Approach

The Facility shall be designed to support the operation BEBs using an optimized charging strategy. This strategy will integrate data from vehicle battery charge and depletion, the bus telematic system, and revenue route planning with available utility and power information at a minimum upon City 's direction to transition to BEBs. The optimized charging strategy requirements to meet this operational criteria will be further defined by the City upon their decision to begin the ETB to BEB transition process at the Potrero Yard.

Due to the timeline required for the electrical service applications and system studies, the City has submitted two applications for electrical service to the San Francisco Public Utilities Commission, which serves as intermediary for City departments for all communications

concerning Hetch Hetchy Power with PG&E.

Electrical services requests may be re-evaluated for initial deployment and space provisions in Infrastructure Facility design considered for additional feeds and switchgear closer to commencement of the ETB to BEB transition (currently proposed to begin no sooner than 2040).

These applications have requested the full electrical load that has been estimated by the City to be required to operate the ultimate total anticipated 213 BEBs on an optimized charging strategy. This estimate is based off the ultimate BEB fleet projected to be operated from Potrero Yard after the completion of a transition from ETBs. This transition is projected to begin no sooner than 2040 and the associated load requirements may be re-evaluated between 2035 and 2038 to plan for 2040 deployment timeframe.

Per the applications for electrical service, the power supply for BEB's is expected to be split across two feeders upon its deployment to allow for immediate redundancy.

The City has been advised by the SFPUC that the maximum service request per application is 10 MW.

2.2. BEB Power and Infrastructure Performance Requirements

During the Term, Non-Profit Entity shall prosecute and manage the ongoing electrical service applications and continue working with the SFPUC and PG&E toward a resolution of the engineering design and construction challenges, the cost, and the schedule to bring the requested electrical service to the Infrastructure Facility.

At Substantial Completion, the Facility's electrical room and all necessary electrical equipment, appurtenances, and provisions shall include a microgrid controller compatible to accommodate the BEB program at full build-out. Additionally, the Infrastructure Facility shall be capable of accommodating the full BEB program based on an optimized charging strategy, and shall adhere to the following requirements:

1. The Infrastructure Facility shall be equipped with all the BEB Charging Infrastructure to accept the future deployment of BEB Charging Equipment required to operate the full programmed fleet of 213 BEBs.
2. The BEB Charging Infrastructure shall be ready to connect to all future placement of additional BEB Charging Equipment in such a way to ensure minimal intrusion and disruption to transit operational continuity at the time of installation and connection of the future placement of all BEB Charging Equipment required to transition the facility from ETBs to BEBs.
3. The mounting provisions for the ETB OCS parking spaces shall be designed to ensure a seamless transition from ETB parking spaces to BEB parking spaces.

Non-Profit Entity shall ensure that adequate space is planned for and created in the Infrastructure Facility so that the future BEB Charging Equipment can be installed, operated and seamlessly integrated with the Charging Infrastructure without modification to the Infrastructure Facility.

The technical specifications that are the basis of design for the future deployment of BEBs at the site, along with select design modules of the BEB Charging Equipment, are attached as Exhibit B, C, and D to this Division 5. The BEB Charging Infrastructure design in Exhibit D (*Conceptual Design Module Package*) is a proof of concept for one approach to deploying the BEB Charging Equipment layout and technology. It is neither prescriptive nor restrictive,

allowing for the development of alternative charging approaches, equipment layouts, required power analyses, or other physical arrangements and charging technologies. Refer also to general notes in Exhibit D for additional context.

The following are the basic technical requirements for the BEB Charging Equipment to be supported by the BEB Charging Infrastructure. Additional requirements may be developed during the Term.

- All charging shall be done within the Infrastructure Facility.
- Overhead DC inverted pantograph chargers shall be utilized for all bus parking spaces.
- Plug-in DC charging systems shall be programmed for all preventive maintenance bays that require overhead charging for the trolley bus configurations. These plug-in DC charging dispensers shall be installed at the rear left side of the maintenance bays with charging cable stored on a cable reel.
- All overhead in-yard charging systems shall be capable of providing a minimum charging level of 150 kW, and safely recharge 40-ft BEB energy storage system (ESS) from 10% state of charge (SOC) usable in vehicle to 90% SOC usable in vehicle in less than four (4) hours.
- All plug-in DC charging systems shall provide a minimum charging level of 50 kW, and safely recharge 40-ft BEB ESS from 10% SOC usable in vehicle to 90% SOC usable in vehicle in less than ten (10) hours.
- Plug-in charging systems shall utilize a concurrent charging enabled charger to energize multiple connected dispensers at once.
- The maximum charging cabinet to plug-in dispenser ratio is 4:1, so long as DC/communications 300-foot limit is maintained, and all other Technical Requirements are achieved.

While still meeting the number of maintenance bays required in Division 3 of the Technical Requirements, Non-Profit Entity shall evaluate and, if space in the bus parking area allows, provide an additional 18” width on the left side of each preventive maintenance bay equipped with plug-in charging systems to allow for safe staff movement around a BEB connected to a plug-in charge connector without interfering with the charge connector or port door.

The charging system shall be compatible, at a minimum, with the following long-range e-bus manufacturers:

1. Proterra
2. New Flyer
3. BYD
4. Nova Bus
5. Gillig

The BEB infrastructure industry is rapidly developing and innovating. Accordingly, the criteria described in Exhibits B and C are set forth as minimum standards and technical requirements.

2.3. BEB Emergency Backup Power Requirements

PG&E reliability data from 2006 to 2015 show that there is an average of one power outage every two years. On average, a power outage in the San Francisco service environment lasts

78 minutes before service is restored. In recent years, power outages have been intentionally implemented by Northern California utility companies in anticipation of wildfires during summer months, which may increase outage length and frequency in future years.

As the City converts its fleet to BEB's, the fleet becomes heavily dependent on electrical utility partners and the resiliency of the SFPUC's and PG&E's electrical infrastructure. In the event of large-scale, sustained electrical outage, the BEB fleet would not have the ability to operate. The City is seeking cost- efficient methods of achieving electrical redundancy to continue providing service and emergency response functions.

The City 's first layer of redundancy is in the electrical service applications, where the City has split the BEB fleet electrical loads into two separate applications. As such, two feeders will enter the site, allowing a portion of the fleet to be powered in the event one feeder is out of service. These applications, the City will also investigate the potential for the two feeders to be fed by two separate PG&E substations, which will add to the resiliency of the fleet.

Currently, the City is not considering procuring a completely redundant power supply from the SFPUC and PG&E (e.g., doubling the facility and BEB electrical requirement) due to cost.

However, the City wants built-in redundancy to power a portion of the BEB fleet once deployed, at City 's discretion.

The following redundancy requirements shall be included in the Charging Infrastructure:

1. In addition to the emergency backup power requirements, 20% of the Potrero Division's fleet (approximately 43 vehicles) shall be connected to a redundant power supply, subject to applicable codes. This backup power requirement must fully charge 20% of the fleet vehicles in under 9 hours.
2. To the extent feasible, this backup power shall be provided by on-site renewable sources (e.g., photovoltaic panel and battery storage system) that are not dependent on fossil fuels.
3. To prepare for future needs, space shall be allocated for three energy storage system (ESS) battery packs, each approximately 10 feet by 40 feet (with clearances to be confirmed in the applicable code).
4. Space is available to serve the future resiliency solution when the BEB transition begins.
5. An emergency operations plan describing how the emergency fleet would function based on the Infrastructure Facility's backup power design.

Non-Profit Entity shall also consider the long-term role the City 's proprietary DC traction power system could play in backup power, once the Facility transitions fully to BEB.

2.4. Reference Design Concept Figures Related to BEBs

This Division 5 includes a sample design solution for accommodating the required BEB Charging Infrastructure. The sample design includes an overhead gantry to mount pantographs and charging cabinets.

The City encourages creativity and innovation in the design of the BEB Charging Infrastructure to support the future deployment of the BEB Charging Equipment. While Non-Profit Entity shall comply with the minimum standards outlined in Section 2 (*BEB's at Potrero Yard*), they have flexibility to determine the spatial design approach.

2.5. Requirements for Facility Conversion Phasing

Upon the City ’s start of the transition from ETBs to BEBs, 60-ft trolley buses are expected to be replaced with BEBs. The City requires that:

1. During Term, Non-Profit Entity shall work with the City to plan for the transition, including adapting to any changes that the City may need to implement to its fleet transition plan, and design the Facility to accommodate the opening day requirements with optimal flexibility.
2. Non-Profit Entity shall implement those plans and continue to work with the City to prepare for its fleet transition.

For the BEB transition, the City requires that:

1. The transition shall occur in phases, preferably one bus parking lane at a time to align with the procurement schedule of the BEB’s
2. The OCS for the ETBs shall be replaced with the overhead Charging Equipment required for the BEBs.
3. Future BEB Charging Equipment shall seamlessly integrate with each prior phase’s existing Charging Equipment and Charging Infrastructure and shall be backwards- compatible with existing BEBs.
4. Future BEB Charging Equipment shall be incorporated in the Infrastructure Facility’s management solution upon activation/commissioning of the BEB Charging Equipment and any modifications to the BEB Charging Infrastructure.

3. EXHIBIT A: BATTERY-ELECTRIC BUS SPECIFICATIONS

Table 3 as follows provides an example description of the potential fleet vehicle the City is likely to pursue upon transition to BEBs. The below general dimensions exclude exterior mirrors, marker and signal lights, flexible portions of the bumpers, and fender skirts.

Table 3: Coach Requirements

Item	40’ E-bus	60’ E-bus
Length, excluding bumpers	41’ +/- 2’	60’ +/- 2’
Width – exterior, excluding mirrors	102” max	102” max
Height Overall, without roof-mounted HVAC system	134” max	134” max
Height Overall, with roof-mounted HVAC system	140” max	140” max
Front Door Height from Ground (normal)	15.5" max	15.5" max
Front Door Height from Ground (kneeled)	13" max	13" max
Rear Door Height from Ground (normal)	17.5" max	17.5" max
Body Ground Clearance	8" min	8" min
Approach Angle with/without Over-raise Feature	9 degrees min	9 degrees min
Break over Angle with/without Over-raise Feature	8.9 degrees min	8.9 degrees min
Departure Angle with/without Over-raise Feature	9 degrees min	9 degrees min
Turning Radius (Outside Body Corners)	45 feet max.	45 feet max.
Axle Zone Clearance	5” min	5” min

BEBs will be equipped with overhead chargers compliant with SAE J3105 (ISO 15118 and IEC 61851 Parts 1 and 23). The center of the overhead charging rails shall be installed above the center of the front door of the coach.

Any charging system used shall be capable of 2-way communication with the Bus ESS and battery management system (BMS). The charge management/operations software solution shall include the following protections and driver alerts: (i) dynamic state of charge of the energy storage system, and (ii) charge rate. Both the bus and charger systems shall be capable of independently commanding an emergency stop of the recharge cycle should a critical fault occur. The City requires a contact style charging interface (SAE J1772 CCS Type 1) to be provided on the rear of the coach on both streetside and curbside.

4. DIVISION 05 - EXHIBIT B: BASIS OF DESIGN – SECTION 11 11 36.14 COMMERCIAL ELECTRIC VEHICLE CHARGING UNIT FOR TRANSIT DEPOTS

The following design specifications and conceptual design modules for the BEB Charging Equipment provide the minimum requirements for sizing the BEB Charging Infrastructure, operational requirements, and minimum spatial needs of the proposed BEB Charging Equipment which shall be installed at a later date upon City's sole discretion and supported by the BEB Charging Infrastructure in place at Substantial Completion.

Note that any references to submittals in the following indicative design specifications are provided as guidance only and are not required to be adhered to as part of the Project.

SECTION 11 11 36.14

COMMERCIAL ELECTRIC VEHICLE CHARGING UNIT FOR TRANSIT DEPOTS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Guide specification of equipment items as listed below by Equipment Mark Number are provided to establish minimum performance requirements, operational criteria, and standards compliance of a DC charging system for commercial battery electric vehicles charged via automated connection to overhead charging rail on vehicle roof and by handheld manually inserted plug. Alternative systems that comply with these minimum performance requirements, operational criteria and standards compliance but are achieved by physically different equipment configurations than the guide layout and the components listed but achieve the same verifiable results will be considered and reviewed by the City as equivalents. DC overhead charging system to consist of:

1. CHARGING CABINET, BATTERY ELECTRIC BUS, 150kw DC POWER Equipment Mark Number: 8012

2. CHARGING PANTOGRAPH, INVERSE, FACILITY MOUNTED Equipment Mark Number: 8020

3. REMOTE PLUG-IN DISPENSER Equipment Mark Number: 8025

B. Installation of equipment with labor, services, and incidentals necessary for complete and operational equipment installation.

C. Utilities to be roughed in at location recommended by manufacturer.

D. Coordination of equipment and vehicle to allow for automated operation and communication of the Charging Pantograph, Inverse, Facility Mounted, Equipment Mark Number: 8020 with the Owner's battery electric bus fleet. Coordination with other equipment and/or items shall include, but not necessarily be limited to, the following:

1. Equipment Mark Number 8030 Electric Vehicle Yard Management System as specified in Section 11 11 36.20 Electric Vehicle Yard Management System

E. Coordination of equipment and vehicle to allow for corded handheld plug (charge connector) and communication of the Remote Plug-In Dispenser Mark Number: 8025 with the City's battery electric bus fleet. Coordination with other equipment and/or items shall include, but not necessarily be limited to, the following:

1. Equipment Mark Number 8030 Electric Vehicle Yard Management System as specified in Section 11 11 36.20

1.2 QUALITY ASSURANCE

A. Equipment shall be produced by a manufacturer of established reputation with a minimum of five years' experience supplying specified equipment

B. Manufacturer's Representative:

1. Installation: Provide a qualified manufacturer's representative at Project Site to supervise work related to equipment installation, check out and start up.

2. Training: Provide technical representative to train the City's maintenance personnel in operation and maintenance of specified equipment.

3. Testing: Provide technical representative for final testing of equipment.

C. Installation of this equipment item requires initial mock-up and acceptance by design team and the City. Refer to Part 3.02 of this specification section Installation for more details

1.3 STANDARD AND REGULATORY REQUIREMENTS

A. Equipment indicated within this specification section shall comply with all applicable Laws, including seismic, fire, and racking codes and regulations. Additional, more specific compliance requirements may be listed under individual equipment headings.

1.4 SUBMITTALS

A. Submittal requirements for all equipment items included in this section are listed below.

B. Product Data:

1. Submit product data in accordance with Division 1 - General Requirements of these specifications.

2. All product data submittals shall identify proposed project specific items marked by arrow, circle, underline, reproducible highlight, or other markings clearly discernable by the reviewer, to show which specific items, parts and accessories are being submitted for the project product data review. Non-marked or generic product data submittals with no marks indicating specific items, parts and accessories will be a cause for rejection.

3. Restrict submitted material to pertinent data. For instance, do not include manufacturer's complete catalog when pertinent information is contained on a single page.

C. Operation and Maintenance Manual:

1. Provide a complete parts list, operating instructions, and maintenance manual covering equipment at time of installation including, but not limited to:

a. Description of system and components.

b. Manufacturer's printed operating instructions.

c. Printed listing of periodic preventive maintenance items and recommended frequency required to validate warranties. Failure to provide maintenance information will indicate that preventive maintenance is not a condition for validation of warranties.

d. List of original manufacturer's parts, including suppliers' part numbers and cuts, manufacturer's recommended spare parts stockage quantity and local parts and service source based on anticipated frequently replaced and or long lead (more than five workdays) components.

2. ssemble and provide copies of manual in 8-1/2 by 11-inch format. Foldout diagrams and illustrations are acceptable. Manual to be reproducible by dry copy method. Provide copies per provisions of Division 1 - General Requirements.

D. Shop Drawings: Submit shop drawings in accordance with Division 1 -General Requirements of these specifications.

1. Submitted shop drawings shall be project specific and shall include a minimum 1/8 inch to 1 foot scaled (or larger standard architectural imperial scale), dimensioned, graphical representation of the size, orientation, and location for all instances of submitted equipment in a floor plan view and reflected ceiling plan view for DC charging cabinets, dispenser (pantographs and remote plug-in cabinets) and other system elements. The drawings shall further include dimensions from structural elements or architectural grid lines, to each major charging equipment item (8012, 8020 & 8025) operational clearances, locations of any utility service connection points, power and communication output points, mounting requirements, and structural supports required for the submitted equipment. Indicate which specific dispensers are connected to and energized by which specific DC charging cabinet.

2. Manufacturer's standard installation drawings will be accepted and reviewed but are not considered as a replacement to project specific shop drawings.

E. Test Reports: Testing and Commissioning reports are required for all systems included in this specification and shall be included as part of the close-out documents. Provide to the equipment consultant a copy of all testing and commissioning reports for equipment specified herein. Refer to Part 3.03 Testing, of this specification.

F. Required Documents for Permit and Local Jurisdictional Approval: Where required by local jurisdiction and/or code officials, the Non-Profit Entity shall be responsible for producing and submitting all documentation required for obtaining all applicable approvals related to the specified equipment. This documentation may include, but may not be limited to, engineered signed and stamped plans, details, anchorage layouts for equipment on stands and as racks to show compliance with locally adopted ASCE, seismic, fire, and other codes. A copy of these required documents shall be included with the product submittal to the design team/consultant team for their review.

1.5 WARRANTY

A. Warrant work specified herein for one year from Substantial Completion against defects in materials, function, workmanship and charging system operational design.

B. Warranty shall include materials and labor necessary to correct defects including replacement of charging system operational elements with re-designed components.

C. Defects shall include, but not be limited to loose, damaged and missing parts and abnormal deterioration of finish, excessive cord wear.

D. Operational design defects include for pantograph charger and dispenser include systemic bent or non-flexing conductor rails, non-extending / retracting of pantograph due to factory installed elements, failure or intermittent failure to instigate charging process and pantograph deployment due to inability to connect and / or non-communications with vehicle properly aligned below pantograph, failure to deploy pantograph, initiate or complete charging process due to interference from adjacent installed pantographs is an operational design defect. Pantographs conforming to this performance specification are intended to perform in a dense bus parked environment with anticipated adjacent pantographs and battery electric buses on all four sides of surrounding each installed pantograph. Operational design defects for DC charging cabinet and plug-in dispenser include systemic bent charging and charging communications connector pins, damaged charging cord conductors and internal wiring, breakage and deterioration of charging plug-in mating elements (ports, charging connector) during routine daily use of charging system. Submit warranties in accordance with Division 1 - General Requirements of these specifications.

E. All parts shall be readily available locally in the United States.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver equipment in manufacturer's containers, appropriately packaged and/or crated for protection during shipment and storage in humid, dusty conditions. Equipment shall be stored per manufacturer's recommendation.

B. Indelibly label all containers, including those contained in others, on outside with item description(s) per title and mark number of this specification.

C. Provide equipment and materials specified complete in one shipment for each equipment item. Split or partial shipments are not permissible.

1.7 LABELING

A. Manufacturer shall securely attach in a prominent location on each major item of equipment a non- corrosive nameplate showing manufacturer's name, address, model number, serial number, and pertinent utility or operating data.

B. All electrical equipment and materials shall be new and shall be listed by Underwriter's Laboratories, Inc. (U.L.), or other US National Recognized Testing Laboratory (NRTL) acceptable to both the design team and local code officials, in categories for which standards have been set by that agency and labeled as such in the manufacturer's plant.

PART 2 - PRODUCTS

2.1 CHARGING CABINET, BATTERY ELECTRIC BUS, 150KW DC POWER EQUIPMENT MARK NUMBER: 8012

A. General:

1. Description: Upright cabinet(s) connected to multiple charger dispensers including:

   a. Facility mounted inverse charging pantograph, and capable of automatically charging the connected battery electric bus (BEB) utilizing DC electrical power. Intended for long term charging of BEBs in overnight parking positions. Unit must be capable of operating in dense installation of multiple mark 8012 charging cabinet units located in same general area.

   b. Facility mounted standalone stationary cabinet dispenser capable of charging a battery electric bus utilizing DC electrical power after being manually connected to a battery electric bus by a flexible power cord and handheld plug. Intended for short term charging of BEBs in maintenance and service bays.

2. Coordination: Specification information indicated herein is intended as general requirement only. Final design of the system shall be by the manufacturer and shall be presented in the project specific shop drawings in coordination with the Charging Pantograph, Inverse, Facility Mounted Equipment Mark Number: 8020 and Remote Plug-In Dispenser Mark Number 8025 as a fully coordinated, complete design.

3. Compliance: The equipment and final design shall comply with the most current editions of all applicable local, state, and federal codes and regulations, including, but not limited to, those listed below.

   a. SAE International Standard J3105, Electric Vehicle Power Transfer System Using a Mechanized Coupler, most recent edition

   b. SAE International Standard J3105/1, Infrastructure-mounted Pantograph (Cross-

   c. Rail) Connection

   d. SAE J1772: SAE Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler, most recent edition.

   e. NFPA 70: National Electric Code (NEC), most recent edition.

   f. NFPA 70E: Standard for Electrical Safety in the Workplace, most recent edition

   g. Underwriter’s Laboratory UL 2202, Standard for Electric Vehicle (EV) Charging System Equipment, most recent edition.

   h. Underwriter’s Laboratory UL 2231-1, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: General Requirements

   i. Underwriter’s Laboratory UL 2231-2, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: Particular Requirements for Protection Devices for Use in Charging Systems.

j. ANSI/IEC 60529: Degrees of Protection Provided by Electrical Enclosures (IP Code), most recent edition.

k. IEC 61851-1; 23; 24: Electric Vehicle Conductive Charging System, most recent edition.

l. IEC 61000-6-2: Electromagnetic Compatibility (EMC) – Part 6-2: Generic Standards – Immunity Standard for Industrial Environment.

m. 29 CFR 1910.147: General Environmental Controls, The Control of Hazardous Energy (Lockout/Tagout), as enforced by OSHA, most recent edition.

n. International Electrotechnical Commission (IEC) 60309, most recent edition.

o. Federal Communications Commission (FCC) rules and regulations, as applicable.

p. Open Charge Point Protocol OCPP 2.0 or higher to allow charger control and monitoring by a third-party charge management system

4. Components:

a. Power Cabinet(s).

b. All components, interconnecting cabling and conduits/ducts between components, software, and accessories for a fully and properly operational device.

B. Capacities and Dimensions:

1. Cabinet equipment unit performance to allow total output charge power, DC: Nominal 150 kilowatts (kW), minimum capable to charge a 675kWh battery electric bus (BEB) from a ten percent usable by vehicle state of charge to ninety five percent usable by vehicle state of charge in a consecutive four-hour period from a single dispenser.

a. Systems that combine power outputs from two or more separate standalone cabinets to produce the total output charge power of the nominal 150kW minimum and charger time are acceptable and considered equivalent to a single 150kW cabinet unit.

b. Systems that employee a single larger kW cabinet with multiple outputs to dispensers that produce the total output charge power of the nominal 150kW minimum and charger time are acceptable and considered equivalent to a single 150kW cabinet unit.

c. Quantity of inverted pantographs charging dispensers in bus parking areas, output charge power from entire overhead DC charging system to be capable of charging full quantity of overhead electrically charged vehicles identified on the project drawings in a single consecutive (8) eight-hour period minimum inclusive of charge management peak power reductions, state of charge (SOC) diversity factor as described in addendums and other proposed and verifiable max charging power reduction systems. Additional chargers provided in maintenance and services bays are not to be factored in to charging systems ability to charger the identified BEB fleet size in an eight-hour period.

2. Output voltage range: 200-1,000 volts, DC.
3. Rated DC output current range: 3-250 Amps, bi-directional.
4. Operating temperature range: -22 degrees Fahrenheit (F) to 113 degrees F.
5. Input connections: 3 phase plus protected earth ground wire
6. Input power rating: nominal 205 kVa (full load) / 100 VA (idle)
7. Input AC line-line voltage range: 480 VAC +6/-13%
8. Input AC phase current: nominal 283 amps, maximum / 385 amps fused.
9. Power factor, total harmonic distortion: 0.95, minimum.
10. Power conversion efficiency at full load: 96 percent, minimum.
11. Dielectric withstand: 3,000 volts, root mean square (RMS).
12. Network connection: 4G/LTE modem, minimum, utilizing Open Charge Point Protocol (OCPP) 2.0 or later network communication.
13. Protection: IP54 and IK 10 or equivalent NEMA rating.
14. Operational noise level: 85 decibels, maximum.
15. Overall dimensions, power cabinet(s), maximum nominal:
    a. Width: 40 inches.
    b. Depth: 40 inches.
    c. Height: 91 inches.
    d. Weight: 2,200 pounds.

C. Features and Construction:

1. Each electrical cabinet to be a standalone unit capable of meeting the specification herein. The cabinet shall include capability for entry of alternating current (AC) electrical supply, main isolation transformer cabinet, AC to DC power conversion, AC grid coupling and protective devices, DC output coupling and protective devices, controller for charger circuit and the communication equipment, and forced-air over coolant chiller functions.
2. Capable of being connected to power supply grid or low voltage power distribution station.
3. Charge cabinet configurable to support either multiple overhead pantograph dispensers or plug-in dispensers. Individual cabinet not required to be capable of being connected to and simultaneously or concurrently energizing a mix of both pantographs and plug-in dispensers. Concurrent charging is preferred but sequential charging systems in bus parking areas will be considered based on submitted charging

performance. Concurrent charging only to be used at maintenance bay plug-in dispensers.

a. On concurrent controlled and powered dispensers, shared dispensers connected (dispenser A, dispenser B+), to a single DC power cabinet, the nominal output (voltage, current, power, charging telemetrics, and controls) to the simultaneously connected remote dispensers will be split from the DC power cabinet and, as controlled by the DC power cabinet's shared dispenser charging priority system, power one remote dispenser unit (dispenser A) up to the nominal maximum outputs while simultaneously and concurrently providing minimal or remaining DC power cabinet's output to the other shared connected remote dispenser units (dispenser B+) until all BEBs connected to the shared charging dispensers are fully energized. During this concurrent controlled charging process, after BEBs initial dispenser connection, plug-in or pantograph connection at the beginning of the charging process, no manual re-plugging / disconnection, re-plugging / reconnection, re-paring or wireless connection of charge connector or pantograph will be necessary.

b. On sequentially controlled and powered dispensers, shared dispensers connected to a single DC power cabinet, the nominal output (voltage, current, power) to the simultaneously connected remote dispensers (dispenser A, dispenser B+) will be shifted from the DC power cabinet and, as controlled by the DC power cabinet's shared dispenser charging priority system, power one remote dispenser (dispenser A) unit up to the nominal maximum outputs while not providing output to any other connected shared remote dispenser units (dispenser B+). As controlled by the DC power cabinet's shared dispenser charging priority system, the DC power cabinet's output will then automatically switch and shift the output (from dispenser A) to another connected and shared remote dispenser unit (dispenser B) up to the nominal maximum outputs (to dispenser B) while not providing output to any other connected shared remote dispenser units (dispenser A, C+). The shifting of power output between the various connected shared remote dispenser units continues until all BEBs connected to the shared charging dispensers are fully energized. During this sequential controlled charging process, after BEBs initial dispenser connection, plug-in or pantograph connection at the beginning of the charging process, no manual re-plugging / disconnection, re-plugging / reconnection, re-paring or wireless connection of charge connector or pantograph will be necessary.

4. Capable of being configured to operate dispenser configuration and energizing a minimum quantity of:

   a. Two (2) Charging Pantograph, Inverse, Facility mounted Equipment Mark Number: 8020 and capable of providing charging power to each pantograph either sequentially or concurrently. Includes all interconnecting electrical cabling, data cabling, conduit / ducts, distribution boxes, DC switches (internal to charging cabinet and external from charging cabinet) and all other components necessary for interconnection.

b. Four (4) Remote Plug-In Dispenser Equipment Mark Number: 8025 and capable of providing charging power to each plug-in dispenser concurrently. Includes all interconnecting electrical cabling, data cabling, conduit / ducts, and all other components necessary for interconnection.

5. Intended for, and fully capable of, installation in an outdoor environment, with a thermal and water-resistant enclosure. Cabinet(s) shall include an integral raised base for protection of equipment and fastening to sub-structure. Raised base should allow for mounting to an elevated steel support frame and not require direct to concrete pad installations.

6. Includes an on-board transformer / rectifier, allowing the power cabinet to receive an alternating current (AC) input power connection from the facility electrical supply and convert it to DC electrical output to the charge box and connected bus.

7. Includes a chiller unit capable of maintaining manufacturer's required temperature for power conversion components. Chiller shall include protective air intake grill(s) and fan(s).

8. Include internal DC distribution box / DC Switch to control and manage DC outputs within the charger cabinet enclosure.

    a. Charging cabinets relying on DC distribution boxes / DC switches that are external to the charging cabinet are acceptable but all components of the external multiple DC output control / management system are to be supplied and installed as part of the charging cabinet system including additional conduits, power and control wiring, DC distribution boxes / DC switches, mounting and supporting structural elements to locate the DC distribution boxes / DC switches from the building structure.

        1) All additional structural loading (weights and reactions), physical space requirements (sizes, clearances, requirements for manual interactions) of an external to charging cabinet DC distribution box / DC Switch to be included with initial approval submission of charging system by the City. Additional charging system components, installation labor, software, or physical controls added to approved charging cabinet system that were not presented as required in initial charging cabinet system review are grounds for negating original submission approval.

9. Unit is designed to be installed with multiple similar mark 8012 charging cabinet units in a dense location and vent locations of cabinets to facilitate close proximity installations between similar cabinets to sides and rear of unit.

10. Include forklift pockets at base of unit or lifting lugs on top and or side of unit. Units that utilize no mechanical connections for lifting and rely solely on wrapped / strapping connections around unit cabinet case to install, position or remove unit are not acceptable.

11. Controller shall include the protective ground connection, the DC output voltage connections, and the supervisory control components.

12. Communications portion of the controller equipment shall be capable of being connected to other computer networks, including networks with charge management systems, through Ethernet and/or wireless connection. The power cabinet shall be capable of communicating to that charge management system by means of an open source, non-proprietary, communication protocol.

13. Includes a cellular antenna, 4G/LTE or better, enabling connection to cellular networks.

14. Includes on-board computer and/or programmable logic devices, software, and wireless communication devices that, at a minimum, also provide the following functionality to the power cabinet:

    a. Pantograph Dispenser

        1) To wirelessly detect BEB mounted transponders within each attached Facility Mounted Inverse Charging Pantograph's (Pantograph) operational area and ignore transponders outside each attached Pantograph's operational area including similar transponders located on all four sides surrounding transponder installation. This process shall be automatic, and performed at system start-up / system re-start, and at programmable intervals and times, up to and including near continuous detection.

        2) To initiate wireless signal with, receive wireless signal from, and establish a wireless communication protocol with any bus in the Owner's BEB fleet that is determined by the system as being parked within the pantograph's operational area, and that has an on-board transponder (by others).

        3) To communicate with, and automatically cause each attached individual Pantograph to descend once a BEB has been identified, communication established, and has been detected as 'parked' within that Pantograph's individual operational area. The equipment shall ignore BEBs passing through a Pantograph's operational area.

        4) Automatically cause an attached Pantograph to retract upon receiving a 'disengage' signal from a connected BEB that is parked in that Pantograph's operational area,

        5) Automatically cause each Pantograph to retract to a 'fail safe' state when receiving pertinent error codes, and upon facility power outages and major fluctuations. 'Fail safe' Pantograph retraction shall occur for individual isolated Pantographs and system wide for all Pantographs, depending on error code.

        6) Automatically terminate wireless communication with any BEB after a pre-programmed time, and after detecting the BEB is no longer in operational range, or when the BEB is disengaged.

    b. Plug-In Dispenser

        1) To initiate signal with, receive signal from, and 'handshake' with any bus connected by means of the charge connector while charge connector is plugged into the charging port of a bus.

2) To automatically start, stop, and regulate any charge to any bus battery connected by means of the charge connector while charge connector is plugged into the charging port of a bus.

3) To communicate wirelessly collected bus information to a charge management system regardless of whether the charge connector is plugged into or disconnected from the charging port of a bus.

c. Once wireless communication is established with the bus, to communicate with, request and receive from the BEB the following information: bus identification and battery information such as charge status, temperature, etc.

d. Information collected shall be stored, and able to be transmitted to a charge management system.

e. To automatically start, stop, and regulate any charge to any bus battery connected by means of the Facility Mounted Inverse Charging Pantograph or charge connector.

f. To request, receive, and store bus battery information such as ID, charge status, temperature, etc. from the bus by means of wireless communication with the bus being charged.

g. To allow Owner's charge management system to control and report a minimum feature set of each charging cabinet in real time:

1) Cabinet connected dispenser / pantograph status – connected to a vehicle / not connected to a vehicle

2) Cabinet on (allowing charging to occur) / off (not allow charging to occur)

3) Total cabinet power output

4) Report vehicle ID connected to each dispenser / pantograph connected to DC charging cabinet

5) Cabinet not operational / unit issuing trouble code

15. Lock-out / Tag-out functions – preference is for AC input to charging cabinet to enter at a charging cabinet internally integrated disconnecting means compliant with NEC 625.42 and not require a separate external disconnect. Systems requiring external disconnects will be considered but requirement of need for separate disconnect means and inclusion of external disconnects are required on all submitted product data and project specific shop drawings and charger layouts. Lock-out / Tag-Out functions shall include, at a minimum, the following:

a. AC supply entry cabinet shall not be allowed to open under live grid conditions and shall only be allowed to open only if the main power supply to the charger is locked out.

b. Main transformer cabinet(s) and AC/DC converter cabinet shall not be allowed to open under live grid conditions and shall only be allowed to open if there are no live grid conditions to the charger and if the main power supply breaker is locked out.

c. The chiller cabinet shall not be allowed to open while the charger is energized but shall only be allowed to open if the charger is de-energized and the auxiliary switch is locked out.

16. Emergency Stop Button directly accessible on the outside of the power cabinet. Allows for emergency stopping of the charger and de-energizing of the charging system.

17. Group Remote Emergency Stop Button capable. Allows for connections to auxiliary emergency stop buttons remotely located in the facility and connected to multiple equipment mark 8012 charging cabinet units to stop / reset charging cabinet units as a group. Remote emergency stop reset should not require individual resetting of mark 8012 charging cabinet's factory installed cabinet integrated emergency stop button after remote emergency stop button reset.

18. Remote manual override controls for the Pantograph, capable of extending or retracting the Pantograph on demand and re-start charging wireless validation and the charging process without the need to physically re-park or reset individual vehicle parking brakes. Override controls shall include a key switch and keys for operation.

19. Includes all other components for necessary and proper function of the unit including, but not necessarily limited to, metal support frame and protective panel enclosure, foundation support base, air intake and exhaust vents, forced air cooling fans, air filters, grounding devices and connections, cables, cords, connectors, etc.

D. Finish: Exterior panels of power cabinet to have protective finish to prevent corrosion of enclosure. Provide in Owner's choice of manufacturer's standard colors.

E. Accessories:

1. Refer to Equipment Mark Number 8020 for Charging Pantograph.

2. Refer to Equipment Mark Number 8025 for Remote Plug-In Dispenser.

3. Coolant, in quantity and type as required by manufacturer.

4. Fabricated steel support stand, capable of elevating and properly supporting the DC power cabinet unit. Steel shall be hot-dip galvanized in accordance with ASTM A123 Standard. Refer to drawings for details.

5. Emergency Stop Button (E-Stop) – directly accessible on the outside of the DC power cabinet. Allows for emergency stopping / de-energizing output of all remote dispenser units connected to a single DC power cabinet whose E-Stop button is activated

6. Group Remote Emergency Stop Button (E-Stop) – in quantities and locations as shown on the drawing. Allows for emergency stopping / de-energizing output of all remote dispenser units connected to a multiple DC power cabinets in groupings as shown on the drawings.

7. External DC Output Distribution Box / DC Output switches if required

F. Utilities:

1. Electrical: 480 VAC, 3 Phase, 60 Hz, nominal 283 amps maximum / 365 amps, maximum inrush (fused).

2.2 CHARGING PANTOGRAPH, INVERSE, FACILITY MOUNTED EQUIPMENT MARK NUMBER: 8020

A. General:

1. Description: An overhead facility mounted retractable pantograph capable of automatically connecting to the roof mounted charging contacts of buses in the Owner's battery electric bus (BEB) fleet, and then automatically charging the connected bus utilizing direct current (DC) electrical power via the connected Charging Cabinet, Battery Electric Bus, 150kw DC Power, Equipment Mark Number: 8012.

2. Coordination: Specification information indicated herein is intended as general requirement only. Final design of the system shall be by the manufacturer and shall be presented in the project specific shop drawings in coordination with the Charging Cabinet, Battery Electric Bus, 150kw DC Power, Equipment Mark Number: 8012 as a fully coordinated, complete design.

3. Compliance: The equipment and final design shall comply with the most current editions of all applicable local, state, and federal codes and regulations, including, but not limited to, those listed below.

a. SAE International Standard J3105, Electric Vehicle Power Transfer System Using a Mechanized Coupler, most recent edition.

b. SAE International Standard J3105/1, Infrastructure-mounted Pantograph (Cross-Rail) Connection

c. NFPA 70: National Electric Code (NEC), most recent edition.

d. Underwriter's Laboratory UL 2202, Standard for Electric Vehicle (EV) Charging System Equipment, most recent edition.

e. Underwriter's Laboratory UL 2231-1, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: General Requirements

f. Underwriter's Laboratory UL 2231-2, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: Particular Requirements for Protection Devices for Use in Charging Systems.

g. ANSI/IEC 60529: Degrees of Protection Provided by Electrical Enclosures (IP Code), most recent edition.

h. ANSI/IEC 61851-23: Electric Vehicle Conductive Charging Systems, DC Electric Vehicle Charging Station.

i. 29 CFR 1910.147: General Environmental Controls, The Control of Hazardous Energy (Lockout/Tagout), as enforced by OSHA, most recent edition.

j. International Electrotechnical Commission (IEC) 60309, most recent edition.

k. Federal Communications Commission (FCC) rules and regulations, as applicable

B. Capacities and Dimensions:

1. Pantograph:

a. Rated Voltage: 1,000 volts, DC, minimum

b. Rated charging current: 250 Amps (A), minimum.

c. Operating temperature range: -22 degrees Fahrenheit (F) to 150 degrees F

d. Pantograph operating range, from partial to full extension (nominal): 30 inches to 90 inches

2. Pantograph controller and motor:

a. Supply voltage: 24 volts, DC

b. Current: 40A nominal.

c. Pantograph contact force with vehicle: 112 foot-pounds, maximum

d. Total time to raise pantograph from full extension to full retraction: 5 seconds, maximum.

e. Total time to lower pantograph from full extension to full retraction: 5 seconds, maximum.

f. Compensation of pantograph to the parked bus, nominal:

1) X-axis: 30 inches to the vertical axis

2) Y-axis: +/- 12 inches to the transversal axis

3) Z-axis: +/- 12 inches to the longitudinal axis

3. Compensation of angles: 5 degrees each direction

4. Wireless Communication System:

a. Wireless system communication: CAN bus with SAE J1939 communication protocol.

b. Wireless data interface between antenna and antenna controller: RS-232, Ethernet

c. Communication protocol between antenna and antenna controller: Serial.

d. Wireless antenna:

1) Dimensions, nominal: 12 inches, 9 inches, 6 inches.

2) IP Rating: IP 66 or equivalent NEMA rating

3) Specified range: Capable of detecting bus mounted system transponder within an 8-foot radius of the antenna. Capable of transmitting to and receiving information from any bus mounted system transponder with the 8-foot radius from the antenna. Able to ignore similar surrounding transponders directly adjacent to but outside of the 8-foot radius.

5. Wireless Antenna Controller:

a. Dimensions, nominal: 36 inches, 28 inches, 16 inches.

1) 1) IP Rating: IP 66 or equivalent NEMA rating

6. Wireless Transponder and Data Collector:

a. Connect to vehicle via SAE J1939 connectors.

7. Overall dimensions, nominal:

a. Length: 57 inches nominal maximum

b. Width: 40 inches nominal maximum

c. Height: 42 inches nominal maximum in retracted position

d. Necessary clearance in x-axis: 2 inches

e. Necessary clearance in y-axis (length of rails + clearance): 25 inches + 2 inches

8. Dimensions of interface, nominal:

a. Length (total): 57 inches

b. Length (single contact): 40 inches

c. Width: 30 inches

9. Pantograph positions, from mounting plane (underside of facility structure), as noted on drawings

C. Features and Construction:

1. Pantograph and Pantograph Controller:

a. ‘Inverted’ pantograph down design mounted to the facility structure and extending down to contact vehicle mounted charging contact bars.

b. Pantograph and pantograph controller shall have integrated fail-safe functions. Functions shall include automatic full retract of the Pantograph upon error code, power loss, or other system malfunction.

c. Independently insulated multi-pole contacts: positive, negative, protected earth (ground) and control pilot.

d. Zero electrical potential frame components.

e. Includes flexible head and spring-loaded connection allowing for compensation of the pantograph system.

f. Capable of raising and lowering the pantograph to pre-programmed height/positions.

g. Capable of both quick duration contact fast-charge and long duration depot charging.

h. Includes an internal sensor to provide a soft-stop landing on the bus roof rails.

i. Capable of being de-energized by charging cabinet e-stop systems (cabinet mounted e-stop and additional remote group e-stops)

2. Wireless Communications System Antenna and Antenna Controller: Shall be mounted in a fixed position near the pantograph and contain a programmable logic controller, or similar computing device, along with all accessories (such as cooling devices) necessary for proper operation. Together, the Antenna and Antenna Controller shall be able to perform the following functions:

   a. The Controller shall be able to compute relative distances of bus mounted transponders from the Antenna.

   b. The Controller shall be able discriminate between bus mounted transponder distances and acknowledge and communicate with any bus mounted system transponder located only within the programmed Pantograph operational area. Transponder signals outside of the operational area shall be ignored.

   c. The Controller shall be able to instantly compare each Bus Identification Number received from a bus transponder signal within the specified range to a central Bus Identification Number Authorization File (or similar). The Controller shall continue to try and communicate with bus transponders allowed by the Authorization File and shall ignore signals from bus transponders disallowed by the Authorization File.

   d. Upon initial detection of any bus transponder within the Pantograph operational area, and allowed by the Authorization File, the Controller will immediately search for confirmation signals that the same bus transponder is still within the operational area. If confirmation signals are detected, then the “handshake” communication protocol shall be established between the Controller and the transponder, via the Antenna. If confirmation signals are not detected, then no communication protocol shall be established, and the Antenna and Controller shall continue to search for a transponder signal within the operational area.

e. Upon successful establishment of the “handshake” communication protocol, a communication link shall be established to enable the Controller to read information from the bus mounted Transponder via wireless communication through the Antenna. For the duration of the communication link, the antenna will only accept information from the connected transponder. All other transponder signals shall be ignored.

f. During the life of the communication link, the Controller shall periodically ping the linked transponder and confirm the transponder is still within the specified range of the Antenna and Controller. If so, the communication link shall not be terminated. If not, the Controller shall immediately terminate the link, and begin to search for a transponder signal within the specified range.

g. Controller shall have a physical and/or wireless data connection to the Owner’s network, and capable of periodically accessing and reading the Owner’s Bus Identification Number Authorization File. Periodic access shall be programmable and shall occur at regular intervals.

h. Controller shall be capable of establishing a secure internet connection through the Owner’s network to regularly and periodically download software updates.

3. Wireless Communications System Software: Programs as necessary for functioning of each individual Antenna Controller, as well as a central software program for managing multiple Antenna Controllers within a single site. Central software program shall be web based, or compatible with Owner’s Windows compatible PCs.

4. Includes all other components for necessary and proper function of the unit including, but not necessarily limited to, metal support frame and protective panel enclosure, foundation support base, grounding devices and connections, cables, cords, connectors, etc.

D. Finish: Corrosion and wear resistant finish in Owner's choice of manufacturer's standard colors.

E. Accessories:

1. Modular metal framing system to provide support and stability to items suspended from facility structure. Configuration, quantity and spacing to be determined as part of contractor’s final design.

2.3 REMOTE OVERHEAD DISPENSER EQUIPMENT MARK NUMBER: 8025

A. General:

1. Description: A stationary upright cabinet with a flexible power cord and corded handheld plug (charge connector) capable of being manually connected to the charging port of buses in the Owner’s electric bus fleet, and then automatically charging the connected bus utilizing DC electrical power output generated from a connected Mark Number 8012 DC Power Cabinet.

2. Compliance: The equipment and final design shall comply with the most current editions of all applicable local, state, and federal codes and regulations, including, but not limited to, those listed below.

    a. NFPA 70: National Electric Code (NEC), most recent edition.

    b. SAE J1772: SAE Electric Vehicle and Plug-in Hybrid Electric Vehicle Conductive Charge Coupler, most recent edition.

    c. ANSI/IEC 60529: Degrees of Protection Provided by Electrical Enclosures, most recent edition.

    d. Open Charge Point Protocol OCPP 2.0 or higher to allow charger control and monitoring by a third-party charge management system.

    e. NFPA 70E: Standard for Electrical Safety in the Workplace, most recent edition.

    f. CFR 1910.147: Code of Federal Regulations, Occupational Safety and Health Standards, General Environmental Controls, The Control of Hazardous Energy (Lockout / Tagout), most recent edition.

B. Capacities and Dimensions:

1. Output voltage range at the remote dispenser, refer to Equipment Mark Number: 8012

2. Output current at the remote dispenser, refer to Equipment Mark Number: 8012

3. Output power at the remote dispenser, refer to Equipment Mark Number: 8012

4. Overall dimensions, remote dispenser, nominal:

    a. Width: 24 inches.

    b. Depth: 9 inches.

    c. Height: 32 inches.

    d. Weight: 60 lbs (including weight of cord and charge connector below)

    e. Cable length: 22 feet - nominal.

    f. Charging Connector – SAE J1772 CCS Level 2 plug-in connector with strain relief

C. Features and Construction:

1. Remote dispenser unit shall be connected to and receive power output (voltage, current, power, charging telemetrics and controls) from the DC power cabinet, then regulate and transmit that output to the bus, when manually connected by the charging connector.

    a. Include glass fiber (or similar) communications lines between the DC power cabinet and remote dispenser, as well as all necessary protective conduits, seals, and fasteners.

b. Remote dispenser enclosure shall be rated IP65 protection, per ANSI/IEC 60529.

2. Dispenser cabinet to be mounted in locations shown on plans but anticipated to be mounted to existing facility structural elements or being suspended from overhead structural frame supported by existing facility structure. Ground mounted support stands for plug-in dispensing cabinet located in Maintenance and Service bays are not to be utilized unless specifically call for on plans.

3. Charging connector and attached cord shall be capable of being manually connected to, and disconnected from, the bus charger. Charging connector shall conform to SAE J1772 SAE standard.

4. Charger Status Indicator Light on bottom or side of remote dispenser cabinet and visible to an operator below the plug-in dispenser cabinet when mounted overhead. If charge status indicator light is standard on the top of the cabinet and cabinet orientation does not allow a user below to see the cabinet, providing a secondary cabinet mounted or adjacent mounted to facility structure remote charger status indicator light is acceptable. Three (3) color or more to indicate via color and blinking the following:

   a. Charger Energized and Ready

   b. Charger Connected and Charging

   c. Charger Connected and Charge Complete

   d. Charger Not Ready / Not Charging / Warning Indicator

5. Coordinate installation of the dispenser cord, the dispenser cabinet, and the charging connector in the field so that, once installed, there is minimal bending and/or twisting of the dispenser cord, or ‘flipping’ of the charge connector, when personnel attempt to plug the charge connector into a battery electric bus.

6. Emergency Stop Button directly accessible on the outside of the remote dispenser box. Allows for emergency stopping of the charger and de-energizing of the plug-in charging system.

7. Group Remote Emergency Stop Button capable. Allows for connections to auxiliary emergency stop buttons remotely located in the facility and connected to multiple equipment mark 8025 charging cabinet units to stop / reset charging cabinet units as a group. Remote emergency stop reset should not require individual resetting of mark 8025 charging cabinet’s factory installed plug-in cabinet integrated emergency stop button after remote emergency stop button reset.

D. Finish: Exterior panels of charger box to have protective powder coat finish in Owner's choice of manufacturer's standard colors.

E. Accessories:

1. Modular metal framing system to provide support and stability to items suspended from existing horizontal or vertical structural facility elements. Configuration, quantity and spacing to be determined as part of contractor’s final design. Kindorf or equal.

2. Cord hook / rack to store and secure flexible power cord and charge connector at nominal five foot above finish floor when not in use.

3. Remote secondary charge status indicator light as needed.

PART 3 - EXECUTION

3.1 INSPECTION

A. Coordinate location of rough-in work and utility stub-outs to assure match and/or non-interference with equipment to be installed.

B. Inspect delivered equipment for damage from shipping and exposure to weather. Compare delivered equipment with packing lists and specifications to assure receipt of all items.

3.2 INSTALLATION

A. Perform work under direct supervision of foreman or construction superintendent with authority to coordinate installation of scheduled equipment with design team.

B. Coordinate work with Manufacturer’s Representative indicated in Part 1.02 of this specification section

C. Install equipment in accordance with plans, approved shop drawings, and manufacturer's instructions:

1. Initial City mockup for positioning pantograph Equipment Mark: 8020: At a parked bus charging position to be identified by the City, provide installation mockup of DC charging cabinet connected to an overhead pantograph, wireless communications system to allow for testing and proofing of DC charging system component mounting heights and overhead locations or components relative to parked bus. Mock-up to allow for in- field adjustment of individual charging components, including but not necessarily limited to, electrical junction boxes, mounting and support brackets, and pantograph orientation and auxiliary control connection points. In field adjustments shall consist of those necessary to allow the overhead pantograph to be deployed automatically when a bus is properly parked in the charging position and wireless communications system is engaged. Mock-up shall be reviewed and approved by design team and the City prior to installation of other overhead charging components. Overhead components purchased or installed prior to mock-up approval shall be modified to conform to the approved mock-up without additional material or labor charges to the City

2. Positioning: Place equipment in accordance with any noted special positioning requirements generally level, plumb and at right angles to adjacent work.

3. Fitting: Where field cutting or trimming is necessary, perform in a neat, accurate, professional manner without damaging equipment or adjacent work.

4. Anchorage: Attach DC charging cabinet equipment securely to floor or elevated support frame, in conformance with manufacturer's instructions and as directed by design team, to prevent damage resulting from inadequate fastening and to resist seismic movement. Installation fasteners shall be installed to avoid scratching or damaging adjacent surfaces. Upon completion of work, finish surfaces shall be free of tool marks, scratches, blemishes, and stains.

3.3 TESTING

A. After final connections are made and prior to authorizing payment, specified equipment shall be tested for compliance with specification in the presence of the design team using acceptance procedures provided by the manufacturer.

B. Final testing and post installation inspection are required and shall be performed by the manufacturer or the manufacturer's designated representative only. Final testing and inspection shall not be performed by the installer, unless the installer is also the manufacturer.

C. Manufacturer / Installer shall provide a testing procedure and checklist that indicates proper testing of all major functions of the equipment. This procedure and checklist will form the basis of the testing process.

3.4 CLEANUP

A. Touch-up damage to painted finishes.

B. Wipe and clean equipment of any oil, grease, and solvents, and make ready for use.

C. Clean area around equipment installation and remove packing or installation debris from job site.

D. Notify design team for acceptance inspection.

3.5 TRAINING

A. Direct the technical representative to provide specified hours of training to the City's designated maintenance personnel in operation and maintenance of the following equipment. Coordinate, with Owner, training schedule and list of personnel to be trained.

1. CHARGING CABINET, BATTERY ELECTRIC BUS, 150KW DC POWER Equipment Mark Number: 8012

    a. Hours Required: 16

2. CHARGING PANTOGRAPH, INVERSE, FACILITY MOUNTED Equipment Mark Number: 8020

    a. Hours Required: Included in training for Equipment items listed above.

3. REMOTE PLUG-IN DISPENSER Equipment Mark Number: 8025

    a. Hours Required: Included in training for Equipment items listed above.

B. Obtain, from technical representative, a list of the City's personnel trained in equipment operations and maintenance.

C. Provide a Windows compatible movie file format recording on USB stick of the training session. The training movie can be a recording of a live session or a produced training video

END OF SECTION

Division 6 – Testing & Commissioning and Operational readiness

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:
Technical Requirements

Division 06:
Testing & Commissioning and Operational Readiness

January 16, 2026

FINAL

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6. TESTING & COMMISSIONING AND OPERATIONAL READINESS

6.1 Introduction

The purpose of Commissioning is to provide a systematic process of assuring by verification and documentation, from the design phase and throughout the Term, that all Project systems perform interactively in accordance with the Contract Documents. The parties acknowledge that because many Project systems are integrated, a deficiency in one or more components can result in sub-optimal operation and performance among other components. Remedying these deficiencies can result in a variety of benefits including: (i) improved productivity of Project users; (ii) lower utility bills through energy savings; (iii) increased satisfaction of Project users; (iv) enhanced environmental conditions, health conditions and comfort of Project users; (v) improved Project system and Project Equipment function; (vi) improved Project operation and maintenance; (vii) increased safety for Project users; (viii) better Project documentation; (ix) shortened occupancy transition period; and (x) significant extension of Project equipment and Project systems life cycles.

This Division 6 sets forth the minimum Commissioning requirements Non-Profit Entity is required to comply with.

6.1.1. Definitions

All capitalized terms used in this Division 6 shall have the meaning given to them in this Section 6.1.1 or, if not defined here, in Exhibit 1 to the Agreement.

Commissioning or Building Commissioning: A process consistent with ANSI/ASHRAE/IES Standard 202-2018 that focuses upon verifying and documenting that the Infrastructure Facility and all its systems and assemblies are planned, designed, installed, and tested to meet the Contract Documents.

Commissioning Issues and Resolution Log: Has the meaning set forth in Section 6.5.2.3 of this division.

Commissioning Provider (CxP): The entity that leads, plans, schedules, and coordinates the Commissioning team to implement the Commissioning process.

Commissioning Plan: The plan prepared, submitted and updated by Non-Profit Entity that outlines the organization, schedule, allocation of resources and documentation requirements of the Commissioning process that meets the requirements of Section 6.5.2.1 of this division, as approved by the City.

Commissioning Report: Has the meaning set forth in Section 6.5.3.7 of this division.

Commissioned Systems: Has the meaning set forth in Section 6.4 of this division.

Commissioning Team: The individuals who, through coordinated actions, are responsible for implementing the testing and Commissioning process as described in the Commissioning Plan. The team shall include Non-Profit Entity, City, D&C Contractor representatives, CxP, design professionals, Contractors, and manufacturer's representatives. **Monitoring-Based Commissioning (MBCx):** Has the meaning set forth in Section 6.7 of this division.

Ongoing Commissioning Plan: Has the meaning set forth in Section 6.5.4.5 of this division.

Operational Readiness Working Group (ORWG): Has the meaning set forth in Section 6.8 of this division.

Operational Readiness (OR): Has the meaning set forth in Section 6.8 of this division.

Operational Readiness Plan: Has the meaning set forth in Section 6.8 of this division.

Seasonal Testing: Has the meaning set forth in Section 6.5.4.2 of this division.

Systems Manual: Has the meaning set forth in Section 6.5.4.1 of this division.

6.2 Standards and Guidelines

The Infrastructure Facility shall be Commissioned in compliance with all, but not limited to, the latest editions of codes and standards listed below:

ASHRAE Standard 202- 2018; “Commissioning Process for Buildings and Systems”.

ASHRAE Guideline 0-2019; “The Commissioning Process”.

ASHRAE Guideline 1.1-2007; “HVAC&R Technical Requirements for the Commissioning Process”.

ASHRAE Guideline 1.4-2019; “Procedures for Preparing Facility Systems Manuals”.

ASHRAE Guideline 4-2019; “Preparation of Operating and Maintenance Documentation for Building Systems”.

NECA 90-2015; “Commissioning Building Electrical Systems”.

NFPA 3-2021; “Standard for Commissioning of Fire Protection and Life Safety Systems”.

NFPA 4-2024; “Standard for Integrated Fire Protection and Life Safety System Testing”.

ASTM E2813 – 2018; “Standard Practice for Building Enclosure Commissioning.

ASTM E2947 – 2021a; “Standard Guide for Building Enclosure Commissioning”.

NIBS Guideline 3-2012; “Building Enclosure Commissioning Process BECx”

USGBC, Leadership in Energy and Environmental Design (LEED™).

CALGreen

Manufacturer guidelines for equipment testing.

NFPA 110 - 2022 Edition: “Testing of Emergency Power Systems.”

NFPA 21 - 2020 Edition: “Testing of Fuel Oil Systems.”

6.3 LEED

Non-Profit Entity is required to file for and achieve a gold level certification for the Project under the Leadership in Energy and Environmental Design (LEED™) V4 (or the most current fully released version of LEED) program, as detailed in Division 3, Section 3.4, of the Technical Requirements. As part of the LEED™ Gold certification, Non-Profit Entity shall meet the Energy and Atmosphere prerequisite, “Fundamental Commissioning and Verification” of the building energy systems and shall attain the “Enhanced Commissioning” credits in full (6 points).

In general, the Commissioning process as described in this Division 6 will meet and exceed LEED™ and CALGreen certification requirements.

6.4 Commissioned Systems

The Infrastructure Facility shall be delivered on a full turn-key basis in accordance with the Contract Documents, including the Commissioning of all systems, assemblies, and equipment provided and installed by Non-Profit Entity, which shall include:

- Mechanical, including HVAC&R equipment and controls;
- Plumbing, including domestic hot water systems, fire suppression system, pumps, controls and compressed air system; electrical, including service, distribution, lighting, and controls, including daylighting controls;
- Building Automated System;
- Emergency and standby power systems;
- Renewable energy systems (if applicable);
- Audio and visual systems;
- Security systems;
- Smoke control and fire alarm systems;
- Building enclosure systems and assemblies, including:
    - Roof waterproofing, all penetrations, and transitions;
    - Skylights and other sloped glazing;
    - Exterior walls, including the air barrier system, water management systems, and thermal insulation;
    - Punched windows, window walls, curtain walls, storefronts, glazed entries, doors, and louvers;
    - Sealants, expansion joints, and control joints;
    - Flashings, including all transitions and end-dams;
    - Deck waterproofing (if applicable);
    - Below-grade waterproofing, including drainage, waterproofing and damp proofing;
    - Below slab floor barriers;
    - Interface and transition conditions between exterior enclosure components and systems;
    - Smoke controls and fire separation and stopping; and
    - Any other special building enclosure systems, equipment, and controls.
- All NPE-provided items on the Equipment List including but not limited to:
    - Bus maintenance lifts;
    - Traction power systems;
    - Compressed air connections to hose reels and process equipment for tire shop, paint shop, sheet metal shop, preventive maintenance bays, lower-level work area (LLWA) preventive maintenance bays, bus wash and service areas;
    - Loading dock systems;
    - IT room cooling;
    - Circulation fans;
    - Gear oil, differential fluid, coolant and power steering tank systems and tank monitoring system;
    - Used coolant collection and tank system, including monitoring;
    - Used oil collection and tank system, including monitoring;
    - Bus wash equipment and monitoring system;
    - Security management system;
    - Bus garage gas detection equipment;
    - Fire command center; and
    - Bridge crane – 5 ton

(together the "Commissioned Systems").

6.5 Commissioning Provider (CxP)

Non-Profit Entity shall engage the services of a City-accepted CxP having technical background and in-depth expertise with the Commissioning process including verification techniques, functional performance testing, system equipment and operation and maintenance knowledge. The CxP must be an entity that specializes in building Commissioning and shall be commercially independent of any person already engaged by Non-Profit Entity for provision of the Contract Services.

The CxP shall bring a total building Commissioning perspective to the Project and be knowledgeable in (and where applicable, federal, State and local): (i) building fire codes; (ii) water-based extinguishing systems; (iii) detection systems; (iv) LEED; (v) energy codes, energy efficient design strategies; (vi) building envelope materials, components, assemblies, and systems; (vii) high performing building management and controls; and (viii) other building requirements.

The CxP will take the lead role in coordinating the entire Commissioning process on behalf of Non-Profit Entity, from preparation of the Commissioning Plan through to the completion of Commissioning. To fulfil all Commissioning requirements, the CxP may be one or more firms with special skillsets working together. In all cases, however, the CxP must be led by single firm with a designated individual responsible for all Commissioning work.

The CxP shall be Non-Profit Entity's only representative with respect to the Commissioning process, and shall be the only point of contact in respect of Commissioning matters for the City throughout the Commissioning process.

The CxP shall have specialized experience in Commissioning recently constructed buildings of similar complexity, size and type to the Infrastructure Facility. In the event that Non-Profit Entity proposes a CxP that the City reasonably believes cannot meet the requirements stated in this Division 6, Non-Profit Entity shall propose an alternative CxP that the City accepts. If the parties are unable to agree with the CxP, the CxP shall be selected in accordance with the dispute resolution procedures set forth in Article 18 (Partnering; Contract Dispute Procedures) of the Agreement.

Non-Profit Entity shall propose a person acceptable to the City who can act as a substitute for the named CxP in the event that the CxP is unavailable or otherwise unable to complete this role.

6.6 Performance Requirements

The Commissioning scope pertains to all performance criteria set forth in the Technical Requirements, Division 3 (Design Criteria Document), Section 4 (Performance Requirements). Accordingly, the CxP shall be responsible for reviewing those sections and identifying all systems, components, and assemblies that necessitate testing and commissioning to demonstrate compliance with the specified performance criteria.

6.7 Commissioning Scope

For the avoidance of doubt, all Commissioning procedures, processes, activities, and reporting will apply to all Commissioned Systems. The CxP shall report to Non-Profit Entity but be available to answer questions from the City and will coordinate with the City on site visits, testing activities, and trainings.

6.7.1. Summary

Non-Profit Entity shall hire a CxP to perform the scope contained in this Division 6, as well as perform testing required elsewhere the Technical Requirements, such as Division 4 (Supplemental Design Criteria).

The CxP shall perform the following tasks, which are further detailed in subsequent sections:

- Review design documentation including the BODR;
- Prepare, update, implement, and comply with the Commissioning Plan;
- Confirm integration of Commissioning activities into the Project Schedule;
- Review Non-Profit Entity and D&C Contractor submittals pertaining to Commissioned Systems;
- Develop site observations reports during construction for Commissioned Systems;
- Develop construction checklists;
- Develop systems test procedures;
- Verify systems installation and operational performance;
- Maintain a Commissioning Issues and Resolution Log throughout the Commissioning process;
- Prepare and submit a Commissioning Report;
- Verify operator and occupant training delivery and effectiveness;
- Prepare, update, submit, and comply with the Systems Manual;
- Review SFMTA O&M Facilities operations 10 months after Substantial Completion;
- Development of an Ongoing Commissioning Plan; and
- Prepare a final Commissioning Report.

The D&C Contractor must provide Project Schedules to the CxP. The CxP will develop and submit a schedule identifying the commissioning process and provide commissioning scheduling information to the D&C Contractor for review and planning activities. The D&C Contractor must incorporate the CxP's activities into the Project Schedule and must integrate and coordinate commissioning process activities.

6.7.2. Pre-Construction Requirements

6.7.2.1. Commissioning Plan

The preparation and contents of the Commissioning Plan shall follow the requirements of ASHRAE Standard 202-2018.

Non-Profit Entity shall prepare and submit to the City for its review and approval no later than NTP2 a Commissioning Plan to evaluate and document that the design, construction, and operation of the Commissioned Systems comply with the Contract Documents. The commissioning plan outlines the organization, schedule, roles and responsibilities, allocation of resources, and documentation requirements of the commissioning process. The purpose and intent of the Commissiong Plan is to ensure:

(a) the planning, design, construction, and operational processes have achieved their intended outcome;

(c) all participants follow an approved plan to ensure the completed Infrastructure Facility will realize its intended level of comfort for Project users;

(d) all stakeholders in the Infrastructure Facility understand their responsibilities for Commissioning activities;

(e) all Project users will be familiar with the Infrastructure Facility and will understand their continuous role in its efficient operation; and

(g) the intended LEED NC Gold Certification for the Infrastructure Facility can be achieved and that LEED EBOM Gold Certification can be maintained through the IFM Period.

The Commissioning Plan shall include, at a minimum, the following information:

- Overview of the Commissioning activities developed specifically for the Project;
- Roles and responsibilities for the Commissioning Team throughout the Project;
- Documentation of general communication channels, including the distribution of the Commissioning Plan during the design and construction process;
- Detailed description of Commissioning activities that will occur between NTP2, Substantial Completion, and Final Acceptance;
- A schedule of activities and site visits, including any key meetings between Non-Profit Entity, City, and CxP;
- Project design documentation evaluation procedures;
- List of documents and materials to be provided for review by the D&C Contractor related to the Commissioned Systems;
- Guidelines and format that will be used to develop the Commissioning documentation, including Systems Manuals and training plans;
- List and format for design review's, checklists and testing forms, Commissioning Issues and Resolution Log, and Commissioning progress reports that will communicate and track critical Commissioning activities information;
- List of Commissioned Systems and description of evaluation procedures;
- A description explaining how the activities in the Commissioning Plan will verify the Commissioned Systems performance against the Contract Documents and the Infrastructure Facility's readiness for operations; and
- The process and procedures for whenever Commissioning evaluation does not comply with the Contract Documents

6.7.2.2. Review of Design Documentation

The CxP is required to conduct a design review, similar in rigor to a peer review, of the BODR, specifications, and design drawings at the following proprietary design review stages (see Section 1.8.5 of Division 1 of the Technical Requirements):

1. At completion of 100% Design Development stage; and
2. During the 90% Construction Documents stage.

This review shall assess the adherence of the design to the Contract Documents and any highlight any potential issues with meeting the intended performance of the Infrastructure Facility.

Evidence of these design reviews shall be documented, at a minimum, in the Commissioning Issues and Resolution Log.

In addition to the Commissioning Issues and Resolution Log, for each round of design review, the CxP shall prepare and submit to Non-Profit Entity a design review memorandum addressing:

- List of the documents reviewed;
- Laws, standards, and guidelines used to perform the review; and
- A summary of the review flagging and describing major issues discovered.

The CxP shall submit the design review memorandum and Commissioning Issues and Resolution Log to Non-Profit Entity, no more than two weeks after the Design Deliverables are submitted for City review. Non-Profit Entity shall review the comments and respond to each item with acceptance or a response to the comment. All the comments shall be settled by Non-Profit Entity, D&C Contractor, and CxP. A workshop(s) between the D&C Contractor, Non-Profit Entity and/or CxP may be held to discuss any comments requiring clarification or discussions or decision by Non-Profit Entity. The CxP can chair these workshop(s).

Any CxP reviews of design documentation prior to NTP 2 may take place before or during the preparation of the Commissioning Plan.

6.7.2.3. Commissioning Specifications

The CxP will provide Commissioning specifications to the D&C Contractor during the design process. The D&C Contractor is responsible for notifying the CxP of the timing for submitting the Commissioning specifications to the D&C Contractor.

The D&C Contractor must coordinate the Commissioning specifications with the project specifications and incorporate them into the project specifications no later than the 90% Construction Documents Submittal.

The CxP will provide the D&C Contractor with concise and complete Commissioning specifications, both as a standalone administrative section and in individual equipment sections. The D&C Contractor must incorporate these specifications into the project record.

6.7.2.4. Commissioning Issues and Resolution Log

Throughout the Commissioning process the CxP shall develop and maintain a Commissioning Issues and Resolution Log where deviations from the Contract Documents, system and component performance are identified and their resolution documented. The log shall identify, for each discipline in the Commissioning scope, the number of open issues, issues closed, and issued still pending, and shall be updated until final correction is made, verified, and closed.

The Commissioning Issues and Resolution Log shall be tabulated with the following information provided for each comment:

- Comment number;
- Comment date;
- Author;
- Referenced document, system, assembly, or equipment;
- Description of the issue;
- The party responsible for correcting the issue
- Reason for the comment (e.g. code compliance, coordination, operational impact.);
- Criticality of the issue; and
- Status of the issue (open, pending, closed)

The Commissioning Issues and Resolution Log shall be accessible at all times to Non-Profit Entity and the City. The Commissioning Issues and Resolution Log shall be started during pre-construction and remain as a live document until Final Acceptance.

6.7.2.5. Training Requirements for Commissioned Systems

Non-Profit Entity and CxP shall establish training requirements in the Commissioning Plan for City personnel involved in the operation, maintenance, safety, and quality-related activities of Commissioned Systems. The training requirements must be reviewed and approved by the City. The Commissioning Plan shall include recommended training procedures, materials, and records to ensure that the skills and professional judgment of City and CxP personnel are developed appropriately for their intended roles before Substantial Completion.

The CxP shall review and comment on any planned training as it relates to Commissioned Systems.

6.7.3. Construction Requirements

6.7.3.1. General

The CxP shall be responsible for the following:

- Coordinate and conduct all Commissioning activities as described in the Commissioning Plan in a logical, sequential, and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all parties, frequently updated timelines and schedules, and with technical expertise;
- Coordinate the Commissioning work with the D&C Contractor and their subcontractors and the Construction Manager and ensure that the Commissioning activities are being scheduled into Project Schedule;
- Revise, update and augment the Commissioning Plan in accordance with the requirements and format of ASHRAE standards and guidelines, as necessary;
- Coordinate and conduct the Commissioning kick-off meeting with the Commissioning Team within 60 days of NTP2 and issue meeting minutes;
- Review all Requests for Information (RFI) and change orders applicable to the Commissioned Systems for impacts on Commissioning and the Contract Documents.

6.7.3.2. Submittals Review

During construction the CxP shall review the Submittals stated in the Commissioning Plan as well as any construction Submittals generated by the D&C Contractor related to Commissioned Systems to verify compliance with the Contract Documents. The CxP shall enter all Commissioning Submittal reviews in the Commissioning Issues and Resolution Log. At a frequency determined by the Commissioning Plan, the CxP shall prepare and submit to Non-Profit Entity a Submittal review memorandum addressing:

- List of the documents reviewed;
- Codes, standards and guidelines used to perform the review; and
- A summary of the review flagging and describing major issues discovered.

The CxP shall notify Non-Profit Entity of any reviewed submittals that the CxP deems not to meet the requirements of the Contract Documents.

The D&C Contractor must include complete Operations and Maintenance (O&M) materials and manuals in the project record. See more details on sections 6.7.3.8 Operations and Maintenance Material and 6.7.3.9 Operations and Maintenance Manuals.

6.7.3.3. Site Visits/Field Observations

Throughout the D&C Period the CxP shall perform site visits as necessary to observe component and system installations. At a minimum, the CxP shall perform one site visit every two months during building construction.

If the CxP finds any work to be incomplete, inaccessible, incorrect, or non-functional, the CxP shall make note of deficiencies and report the deficiencies in writing to Non-Profit Entity and Construction Manager for remediation before system start-up work proceeds.

After each visit the CxP shall record noted deficiencies in the Commissioning Issues and Resolution Log.

Before system start-up begins, the CxP shall coordinate and perform a final installation verification audit with Non-Profit Entity and the Commissioning Team. The audit shall include a check of:

- Piping specialties including cleaning, flushing, hydrostatic testing, balance, control, and isolation valves;
- Ductwork specialty items including turning devices; balance, fire, smoke, and control dampers; and access doors;
- Control sensor types and locations;
- Identification of piping, valves, starters, gauges, thermometers, etc.;
- Documentation of pre-start-up tests performed, including manufacturers' factory tests;
- Circuit breaker settings;
- Maintenance accessibility to equipment; and
- Review HVAC (Air and water) pressure, leakage test procedures and flushing and witness their execution sufficient to be confident that proper procedures are being followed.

The CxP shall include all testing documentation in the Commissioning Report.

6.7.3.4. Pre-Functional Checklists and Start-up

The CxP shall provide a documented means to verify that equipment has been installed, and start-up has been completed in conformance with the Contract Documents and manufacturer's installations instructions.

Develop an enhanced start-up and initial systems checkout plan for equipment selected to be commissioned. The start-up and checkout results shall be clearly documented according to the manufacturer's written instructions and the Contract Documents.

1. A pre-functional and start-up checklist shall be developed by the CxP for each piece of commissioned equipment and shall include all required checks (mechanical, testing, adjusting and balancing (TAB), electrical and plumbing). The checklist shall be customized for the Project and refer to specific Contract Documents and manufacturer installation requirement as well as applicable codes and regulations;
2. Each checklist shall include a detailed points list and detailed control systems operation and calibration checks to ensure the building automation system (BAS) is fully checked, calibrated, and tested.

The pre-functional checklists are made up of the following:

1. **Equipment data:** Used to capture information that a maintenance management system would typically require. For example: tag number, make, model, serial number and location.

2. **Nameplate data:** Used to validate that the proper piece of equipment has been installed. Check to ensure that the installed equipment matches the approved equipment, use static information captured from the equipment nameplate as specified, as approved and as installed.
3. **Installation data:** Used to verify that the equipment has been properly installed and is a quality control check on the installation. Each check on the checklist shall be referenced to the Contract documents (specification section, drawing and specific detail) or manufacturer installation instruction specific page number.
4. **Start-up data:** Used to confirm that the equipment has been started in accordance with the manufacturers and specified requirements. Develop an enhanced start-up and initial systems checkout plan with contractors for equipment selected in the contract documents. The start-up and checkout results shall be clearly documented according to the manufacturer's written instructions and the Contract Documents.

The CxP shall verify/sample up to 10 percent of the D&C Contractor completed checks using randomly selected completed pre-functional checklists and report the results back to Non-Profit Entity. If the 10 percent sample fails, the D&C Contractor shall make the necessary corrections to all checklists and resubmit. The CxP shall then verify 20 percent of the resubmitted pre-functional checklists.

6.7.3.5. Testing, Adjusting and Balancing (TAB) Verification

The purpose of the HVAC TAB review is to verify the accuracy of the TAB work prior to commencing any functional performance test (FPT) activities that may be adversely affected by improper balancing. The CxP shall advise the D&C Contractor when systems are complete and ready for balancing, typically after the pre-functional checks are verified and accepted.

The CxP shall randomly sample the TAB report generated by the D&C Contractor and verify the system performance is accurately documented. This sample shall consist of 10 percent of documented measurements to verify and validate the reported results and reporting methods used. If significant issues are identified during the 10 percent verification, the D&C Contractor shall need to completely rebalance those systems as well as other similar systems and generate a revised TAB report, which shall be re-verified by the CxP.

To minimize any rework, the CxP may require that the D&C Contractor submit a customized TAB plan and procedures as required by the specifications prior to commencing TAB work. The CxP shall review the plan and meet with the D&C Contractor beforehand and discuss their approach to balancing the Project and provide guidance and assistance as needed. Results of review and meeting shall be documented.

Acceptance of TAB work by the CxP is a pre-requisite for starting Functional Performance Testing (FPT).

Items to be verified by TAB include (unless not applicable to the Final Design):

- Isolation valves are provided at all equipment.
- Pressure gages, thermometers, P/T plugs and flowmeters are available at all equipment for testing.
- Branch volume dampers in ductwork are provided.
- Sufficient straight duct sections are included for manual pitot traverses or airflow monitoring stations.
- Balancing valves are shown at base of main piping risers.
- Pumps have appropriate balancing accessories. Coils have balancing valves.

- Airflow diagrams are recommended to aide with air balancing and zoning analysis.
- Water system flow diagrams are included to show piping circuit design, pump accessories, air control devices, and make-up water connections.
- The Testing and Balancing specification is adequately detailed and certification requirements are included

6.7.3.6. Functional Performance Testing (FPT)

During the acceptance phase of the Commissioning process, the CxP shall review the D&C Contractor's sequence of operations and clarify aspects and requirements that are ambiguous, incomplete, or not included. Where necessary the CxP shall rewrite the sequence in a format and language that help facilitate the writing of the program by the D&C Contractor. This sequence shall be used for testing. In the case where the FPT has been identified as failing the expected outcomes, the CxP shall allow for at least one re-test during the Commissioning process.

The CxP shall prepare FPT procedures for equipment and systems, using written, repeatable test procedures that are used to functionally test each system and assemblies. These tests shall be documented to clearly describe the individual systematic test procedures and the expected system response or acceptance criteria for each procedure.

Prior to testing, the CxP shall distribute the written procedures to be used during the test for review and pre-testing by the D&C Contractor.

The CxP shall also use the building management system control monitoring and historical data storage and trending capability to verify that the performance of the Commissioned Systems is achieved under varying load conditions throughout the building.

Functional performance testing (testing) shall address 100 percent of the Commissioned Systems. The CxP shall record all passes, failures, and deficiencies in the Commissioning Issues and Resolution Log. Failures and deficiencies shall be addressed by Non-Profit Entity and retested.

For HVAC systems specifically, the CxP shall:

- test the systems in automatic and normal mode (temperature, volume and pressurization control as well as of operations recovery after failure);
- test the systems in other significant modes, sequences, and control strategies including start-up, shutdown, unoccupied mode, manual mode, equipment component staging and backup upon failure (including air handling units, terminal boxes, fan coil units, fans, boilers, chiller, cooling towers, pumps, etc), modulation up and down of the unit's range of capacity, miscellaneous alarms, power failure, security alarm when impacted, and interlocks with other systems or equipment; and
- simulate high demand, off-season or unoccupied conditions through control system manipulation to verify proper system response and coordinated control, including alarms generation, operating and safety control functions.

For lighting systems specifically, the CxP shall verify and document configuration and calibration with all interior and exterior lights and lighting control equipment, which shall include but may not be limited to:

- occupancy sensors and daylight photocells, specifically, sensor location, sensitivity and time out settings suited for the application;
- verify and commission the system with the appropriate equipment, for example a light meter; and
- verify the lighting systems work in coordination with any building daylighting control systems.

The Non-Profit Entity shall be responsible for providing temporary network switches to enable IT / Comms system testing and any other testing. The City is not obligated to install its permanent network switches until after Substantial Completion but may do so earlier if the Project Schedule and Work progress allow and Non-Profit Entity agrees.

For clarity, the CxP shall not perform any of the testing required in this section and the CxP's actions shall not relieve Non-Profit Entity from any of Non-Profit Entity's obligations under the Agreement.

6.7.3.6.1. FPT Noticing and Results

Under the direction of the CxP, appropriately qualified personnel of Non-Profit Entity shall implement all testing as set forth in the Commissioning Plan. Non-Profit Entity shall give the City a minimum of 30 days' notice as to when the testing will begin and shall invite the City to witness and to comment on each aspect of the testing up until all testing is fully complete. Non-Profit Entity shall, together with such notice to the City, provide all information the City may reasonably require in relation thereto, including: (i) tests proposed; (ii) test methodology; and (iii) expected test results. The City shall be provided with full and reasonable access to all Commissioning activities to ensure the City remains fully informed of the process.

Within 15 Business Days following the last day of testing performed pursuant to this Section, Non-Profit Entity shall provide the City with testing results, certified as true, complete and correct by Non-Profit Entity.

Functional testing must be completed prior to pre-acceptance orientation sessions and training.

6.7.3.7. Commissioning Report

After work described in Sections 6.7.3.1 through 6.7.3.6 above have been completed, the CxP shall tabulate and assemble all relevant findings and results into a Commissioning Report. Non-Profit Entity shall submit the Commissioning Report to the City for review and approval before Substantial Completion can be achieved.

The Commissioning Report shall include the following:

- A summary of Commissioning Plan including lists of participants and their role, building description, overview of the Commissioning scope, and a general overview of the testing and verification methods used;
- Description of Commissioning process benefits and results of the Commissioning process;
- A summary of the design review process;
- A summary of Submittal review process;
- A complete description of all FPT procedures, results and evaluation;
- An up-to-date and complete Commissioning Issues and Resolution Log with all entries resolved, plans for resolving any outstanding issues; all Commissioning activities to occur past Substantial Completion shall be clearly identified (if applicable);
- A clear, written confirmation that all failures or deficiencies in the Commissioning Issues and Resolution Log have been resolved;
- Clear, written confirmation that the individual systems and assemblies listed in Section 6.4 of this Division 6 meet the Contract Documents and that the Infrastructure Facility is ready for operations;
- Operations and maintenance materials (see Section 6.5.3.8 for requirements);
- Written evaluation of conducted training noting any further training needs or gaps; and
- Plan for resolution of any outstanding Commissioning-related issues

The Commissioning Report shall also include the following documentation as attachments:

- BODR;
- all design review and submittal review memoranda;
- Commissioning Plan;
- Meeting notes;
- Training records;
- Executed Pre-Functional Checklists;
- Start-up reports; and
- Trend logs.

6.7.3.8. Operation and Maintenance Manual

Non-Profit Entity shall ensure the City receives an Operation and Maintenance Manual (O&M Manual) drafted in accordance with ASHRAE Guideline 4, 2019 no later than Substantial Completion to enable efficient building operations and better ensure the results of Commissioning activities persist over time. The O&M Manual shall include at a minimum:

- Introduction and guide, including index, glossary, emergency information, key information, and contractual and legal information;
- Health, safety and environment provisions, including risk assessments and residual risks, precaution notices, disposal information, first aid, and specific safety management systems;
- Operating procedures, including general procedure, theory of operation to a discrete component level, automatic operation, manual operations, routine inspections, fault conditions, remote monitoring, emergency procedures, fault finding, operational limits, troubleshooting procedures, and incident management.
- Maintenance procedures, including strategy such as run to fail / service procedures, generic and preventative maintenance procedures, cleaning instructions, maintenance task matrix, tooling list for maintenance programs, qualification of personnel, continuous certification, predictive / preventative / reactive routines, and special procedures.
- Schematic diagrams, detailed wiring diagrams (power and control) or flow diagrams (as applicable), to a discrete component level;
- Parts lists showing all discrete components with part number and current prices and availability, list of replaceable supplies (paper, ink, ribbon, etc.) with part numbers and current prices and availability, recommended levels of spare parts and supplies to keep on hand;
- Names, addresses and telephone numbers of service and repair firms for the equipment; and,
- Manufacturer’s service and maintenance technical manuals, manufacturer’s schedules, including plant schedules, asset register, spares list, manufacturer’s contact details, commissioning data and certification, test records, manufacturer’s literature and product data, design drawings and shop drawings, and any other information.
- Warranty and extended warranty information including required maintenance schedules

6.7.3.9. Budgeting and Lifecycle Costing Support

To support the City’s budgeting and staffing readiness, Non-Profit Entity shall:

- Provide IFM estimates to support forecasting of SFMTA operational resource needs
- Share capital lifecycle assumptions, recommended reserves, and anticipated O&M costs for systems and assets
- Provide comparative analysis to inform City decisions regarding equipment leasing, purchasing, and outsourcing of services

6.7.4. Post Substantial Completion Requirements

6.7.4.1. Systems Manual

The CxP shall prepare the Systems Manual for the Project in accordance ASHRAE Guideline 0–2019, Annex O. The Systems Manual shall include all the information necessary to operate, maintain, and re-commission all energy and water-consuming systems within the Infrastructure Facility. By its nature, the Systems Manual will be a collection of materials already produced by Non-Profit Entity, the D&C Contractor, or the CxP. Non-Profit Entity shall submit the Systems Manual to the City for review and acceptance no later than 180 days after Substantial Completion.

At a minimum the Systems Manual shall include the following:

Executive summary;

- BODR;
- System single-line diagrams;
- Construction record documents and specifications;
- Approved submittals;
- As-built drawings;
- As-built sequence of operation;
- Original setpoints for all systems commissioned;
- Recommended schedule for recommissioning;
- Recommended schedule for sensor recalibration;
- Equipment operations and maintenance manuals;
- Equipment preventive maintenance schedules;
- Confirmation of completed training for IFM Provider and City personnel;
- Ongoing system optimization procedures; and
- Final Commissioning Report.

6.7.4.2. City's Pre-Acceptance Orientation

The D&B Contractor must:

- Provide orientation sessions for operation and maintenance personnel no later than 30 days after substantial completion.
- Schedule and coordinate instruction sessions for the facility's staff for each commissioned system.
- Provide all demonstration and orientation submittals relevant to commissioning to the CxP as requested. Demonstrations must be held per Final Design Documents, along with the appropriate schematics, handouts and visual / audio orientation aids onsite with equipment.
- Ensure that the appropriate equipment vendors provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.
- Provide no less than 48 hours' notice to the CxP for all scheduled training.
- Video record and edit orientation sessions and provide electronic recordings.

The CxP will:

- Review agenda for orientation.
- Review the orientation documentation.
- Witness and confirm orientation session is completed, is attended by the appropriate personnel, is thorough, provides all necessary information required to operate and service the equipment or system, and conforms with agenda and Design Documents.
- Review recording of demonstration and orientation sessions provided by the D&B Contractor.

6.7.4.3. Post Occupancy Review of Building Operations

For purposes of complying with LEED Enhanced Commissioning and building envelope commissioning requirements, starting no later than 10 months after Substantial Completion, the CxP shall:

- review with Non-Profit Entity the current building operation and condition of outstanding issues and occupancy concerns related to the Contract Documents;
- interview the IFM Provider and SFMTA staff to identify problems or concerns they have with operating the Infrastructure Facility as originally intended and provide suggestions for improvements and record the changes in the Systems Manual;
- identify problems that are covered under warranty or under the original D&C Contract and make suggestions for improvements; and
- assist Non-Profit Entity and SFMTA staff in developing reports, documents.

The CxP shall provide written documentation to Non-Profit Entity on how to resolve outstanding Commissioning related issues within one (1) year after the Substantial Completion date to develop a final deficiency and action list. This documentation shall include requests for services to remedy outstanding problems. Non-Profit Entity shall provide the written documentation to the City for information.

Confirm execution of Monitoring-Based Commissioning (MBCx) plan, including:

- The review of metering and trend logs;
- The review the issues log showing results of the MBCx;
- Confirmation of the issues resolutions;
- Confirmation of ongoing operator training; and
- Update the Systems Manual with any modifications or new settings that differ from design, with explanations for the changes.

6.7.4.4. Near Warranty End Post Occupancy Review

Specifically for SFMTA O&M Facilities and certain Equipment List items, starting no later than 10 months after Substantial Completion, Non-Profit Entity shall:

- interview the SFMTA staff to identify problems or concerns they have with operating SFTMA O&M Facilities and certain Equipment List items as originally intended and provide suggestions for improvements and record the changes in the System Manual; and
- identify problems that are covered under warranty or under the original D&C Contract and implement improvements.

The NPE shall, one (1) year after the Substantial Completion date, provide written documentation to the City describing what was learned through interviews and investigations into performance of SFMTA O&M Facilities and certain Equipment List items, how issues will be resolved through warranties or other means, and develop a final deficiency and action list. This documentation shall include requests for services to remedy outstanding problems. Non-Profit Entity shall provide the written documentation to the City for information.

6.7.4.5. On-going Commissioning Plan

For purposes of complying with LEED Enhanced Commissioning and building envelope Commissioning requirements, the CxP shall produce and submit to Non-Profit Entity an Ongoing Commissioning Plan no later than one year after the Substantial Completion Date. The plan shall provide the Infrastructure Facility operating staff with procedures, blank test scripts, and a schedule for ongoing Commissioning activities.

The Ongoing Commissioning Plan shall include the following:

- The definition of the ongoing Commissioning process;
- Defined roles and responsibilities;
- Recommended schedule for recommissioning as-built systems;
- Continuous documentation and updating of Infrastructure Facility's operating plan to meet the requirements of the Contract Documents throughout the building's lifetime;
- Blank testing materials, including functional performance tests for all commissioned as-built systems in the building, as well as an issues log; and
- Direction for testing new and retrofitted equipment.

6.8 Monitoring-Based Commissioning (MBCx)

For purposes of complying with LEED Enhanced Commissioning and building envelope Commissioning requirements, Non-Profit Entity shall develop Monitoring-Based Commissioning (MBCx) procedures and identify points to be measured and evaluated to assess performance of energy- and water-consuming systems. MBCx requirements shall be included in the Commissioning Plan and shall address the following:

- Defining roles and responsibilities;
- Measurement requirements (meters, points, metering systems, data access);
- The points to be tracked, with frequency and duration for trend monitoring;
- The limits of acceptable values for tracked points and metered values (where appropriate, predictive algorithms may be used to compare ideal values with actual values);
- The elements used to evaluate performance, including conflict between systems, out-of-sequence operation of systems components, and energy and water usage profiles;
- An action plan for identifying and correcting operational errors and deficiencies;
- Training to prevent identified errors; and
- Planning for repairs needed to maintain performance.

In addition, the MBCx requirements in the Commissioning Plan shall:

- Define analysis procedures, including the frequency of MBCx-related analyses in the first year of occupancy (at least quarterly);
- Outline the evaluation process and determine the procedure for handling system conflicts, usage profiles, and out-of-sequence operations;
- Include preventive planning and maintenance procedures necessary to meet performance goals; and
- Determine measurement requirements and decide whether predictive algorithms can be used in conjunction with metered points.

Non-Profit Entity shall work with the CxP to ensure that requirements for MBCx are included in all Commissioning-related documents, including the:

- specific trends to track in the BODR;
- Metering and monitoring required for MBCx;
- Single-line or riser diagrams for location of building and system meters in the design submittals;
- Controls sequences for specification of appropriate monitoring points in the design submittals;
- Submittal reviews of meters, energy analysis software, and drawings of controls for compliance with Non-Profit Entity's MBCx metering and monitoring requirements;
- Creation and completion of pre-functional tests for MBCx-related equipment, such as meters and energy analysis software programs; and

- City educational materials regarding measurement techniques, energy analysis software tools, and fault detection and fault resolution, are incorporated into training documentation for the City.

After MBCx activities are complete, the CxP shall update the Systems Manual with any modifications or new settings and give the reason for any modifications from the original design. Non-Profit Entity shall submit any revised Systems Manual to the City.

6.9 Operational Readiness (OR)

Non-Profit Entity acknowledges that the City will be preparing for day one performance of the SFMTA O&M Services. The City requires Non-Profit Entity support to ensure SFMTA staff are ready to perform the SFMTA O&M scope of work.

Non-Profit Entity shall develop and implement a process with the City for transitioning from construction to full operation and achieving day one operational success operating the equipment and facilities related to SFMTA O&M Services. This process may be termed in a variety of ways, including but not limited to ensuring 'operational readiness.'

Non-Profit Entity, in consultation with and with contributions from the City and selected stakeholders, shall develop an integrated Operational Readiness Plan that includes, at a minimum, the following:

- Operational readiness governance structure and points of contact;
- Stakeholder engagement plan, including cross-departmental input from relevant City functional groups (e.g., Maintenance of Way, Fleet Maintenance, Transit Operations, IT, and Security) to review and accept systems design, equipment selections, and operational interfaces;
- Schedule for all familiarization, maintenance, and operational training of City personnel on mechanical, life-safety, and IT systems, with phased delivery aligned with system commissioning schedules and coordinated with other training requirements in the Technical Requirements;
- Testing and acceptance protocols involving qualified City personnel to verify O&M readiness;
- Oversight by the CxP to confirm systems are installed, tested, and operational as specified;
- Confirmation of availability of all required spaces and facilities to support the City's O&M responsibilities (e.g., staff areas, equipment access zones, and tool/spare parts storage);
- Identification and inventory of required spare parts, tools, and cleaning/service equipment necessary to initiate and sustain operations;
- Summary of proving trial program, including schedule, evaluation criteria, and Go/No-Go procedures; and
- Handover and post-transition support plan, including success factors for Day One operations

Summary of shared systems and spaces, including a description of physical and operational demarcation between City and non-transit functions [The City shall provide Non-Profit Entity with SFMTA Bus Yard Standard Operating Procedures (SOPs) that describe the intended City operations and process flows in the Infrastructure Facility. Non-Profit Entity shall review the SOPs and shall check for alignment or conflict with Non-Profit Entity's operations and design documents.] The City will identify and provide contact information for SFMTA's operational readiness and transition team members.

Non-Profit Entity shall prepare the Operational Readiness Plan and submit it to the City for review and approval no later than 180 days prior to the scheduled Substantial Completion Date. Non-Profit Entity shall amend and reissue the plan if changes are required. All activities in the Operational Readiness Plan shall be either: (1) completed no later than the Substantial Completion Date; or (2) completed after the Substantial Completion Date as part of the Bedding-In Period activities.

Non-Profit Entity shall allow for appropriate engagement with designated City staff in the implementation of the Operational Readiness Plan. This shall be accomplished through an Operational Readiness Working Group (ORWG) comprised of Non-Profit Entity and City staff, and other stakeholders as appropriate. The ORWG shall communicate closely with the Move-In Subcommittee and ensure the Operational Readiness Plan is coordinated with Move-In activities and schedule, ensuring all Operational Readiness activities are completed before the end of the Bedding-In Period.

Non-Profit Entity shall provide a dedicated Operational Readiness Point of Contact (OR POC) during the operational readiness period. This Point of Contact shall participate in operational readiness governance and the ORWG, and shall be responsible for coordinating and implementing the Operational Readiness Plan with the ORWG. Specifically, the Point of Contact shall be responsible for coordinating the provision of resources to support Operational Readiness activity, any rectification needs, and act as liaison between the ORWG and the other stakeholders onsite such as the D&C Contractor and the CxP. The ORWG shall be formed no later than 270 days prior to scheduled Substantial Completion Date and shall initially meet on a monthly cadence to contribute to, review, comment on, and complete the Operational Readiness Plan. However, to be specified in the Operational Readiness Plan, it is anticipated that meeting frequencies will increase as the transition date nears. It is anticipated that during the trial period meetings will be weekly with go-no-go calls the day prior to every trial. In the countdown period immediately prior to transition the ORWG will likely need to meet daily.

Operational Readiness stakeholders, including the ORWG, will require access to the Project Site prior to Substantial Completion to plan for operations, transition and perform early trials. Non-Profit Entity shall facilitate the City's and other stakeholder’s safe and secure site access and to manage this process, noting the control of the site.

Non-Profit Entity shall provide input on the Operational Readiness assessment and ensure that building systems and equipment necessary to support scheduled trials will be ready. Non-Profit Entity shall make allowance for safe access to such areas within the site as necessary to facilitate the City’s transition team and SFMTA operational staff as necessary to allow a successful transition to the facilities becoming operational.

Non-Profit Entity shall fully engage with the City’s transitioning team and shall allow for provision of a full and effective handover. This will include timely provision of the Systems Manual and any other necessary documentation to allow the transition to take place.

Non-Profit Entity shall support the City with post-opening support as required and requested by the City. This may include systems hand-holding support, snagging, and lessons-learnt sessions.

6.10 Move-In Services

Non-Profit Entity shall provide resources to plan, coordinate, and assist with the City’s physical Move-In into the Infrastructure Facility. The Non-Profit Entity shall participate in the Move-In Committee no later than eight months prior to the Substantial Completion Deadline.

Non-Profit Entity shall designate a Move-In Resource to support coordination with the City and other stakeholders during Move-In activities. The Move-In Resource shall interface with the City and related Move-In Subcommittee for the Move-In of SFMTA O&M Services from the current location to the Infrastructure Facility.

Non-Profit Entity shall develop and submit a Move-In Plan that outlines its role in assisting the City with the Move-In. This Plan shall be submitted no later than six (6) months prior to the Substantial Completion Deadline, and shall be developed in consultation with the City, taking into account SFMTA O&M Services requirements.

The Move-In Plan shall include:

- A timetable for completion of all activities required for Move-In in traditional project schedule format.
- Information and input required from City.
- Communication plans for City employees, Contractors, etc.
- Timelines for all documents and plans required by these IFM Specifications.
- Development of processes and procedures in conjunction with City, including change management interaction with City.
- Information requirements and transfer.
- Progress meeting schedule.
- Status and reporting mechanism.
- Resourcing requirements, including Move-In staff, hiring and procurement of Contractors.
- Training and orientation of City staff.

Division 7: City Relocation Plan

POTRERO YARD MODERNIZATION PROJECT

Exhibit 18:
Technical Requirements

Division 07:
City Relocation Plan

January 16, 2026

FINAL

City Relocation Plan

Project Overview

The City needs to relocate current SFMTA divisions out of Potrero Yard before giving Right of Entry to the Project Site to NPE. Divisional responsibilities must be upheld and maintained throughout the course of the move out. SFMTA will self-perform Relocation Phases 1 and 2. NPE will perform Relocation Phase 3.

All dates given herein are subject to change as agreed between the Parties.

ORIGIN:
Potrero: 2500 Mariposa Street, San Francisco, CA 94110

DESTINATIONS:
This is a prospective list of possible destinations. Actual destinations to be finalized SFMTA by April 23 Move Matrix deliverable.

MME: Primary "Long-Term" Deep Storage
- 1 South Van Ness Avenue, San Francisco, CA 94103
- Series of 20' and 40' shipping containers

Marin: existing SFMTA site – full-service facility operating (only) 18 vehicles
- 1399 Marin Street, San Francisco, CA
- Temporary materials storeroom

Presidio: existing SFMTA site / yard
- 949 Presidio Ave, San Francisco
- More accessible storage – limited space

Flynn: existing SFMTA site / yard
- 1940 Harrison Street, San Francisco

Kirkland: existing SFMTA site / yard
- 23301 Stockton Street, San Francisco

Islais Creek: existing SFMTA site / yard
- 1301 Cesar Chavez, San Francisco

Woods: existing SFMTA site / yard
- 1095 Indiana Street, San Francisco

Bayshore – existing warehouse (for Fare Box)
- 2650 Bayshore Blvd Daly City

IMPACTED DIVISIONS

Possible list of Division to be moved. Many of these groups will be moving some or all of their content in Phase 1 and Phase 2.

- Materials Management (Phase 1 & 2, self-move)
- Fleet Maintenance (Phase 1&2 partial move)
- Body Shop
- Welding
- Fare Box
- Operations (Phase 1& 2, self move only)
- Controller / Records Retention
- Electronics
- Car Cleaners

Three (3) RELOCATION PHASES:

- **Phase 1:** February 14, 2026 (approximately): preliminary relocation
  - Performed by SFMTA
  - Scope: Operations work stations, partial fleet maintenance equipment. Details outlined in Move matrix
  - Timing to align with SFMTA "GSU" – general service change
- **Phase 2:** April 15, 2026 (approximately)
  - Performed by SFMTA
  - Scope is partial fleet maintenance equipment, TBD as the next step in the planning process following Phase 1 relocation.
- **Phase 3:** Late June, 2026: Final relocation
  - Performed by NPE
  - Must be completed no later than NTP 1 + 74 Days (June 30, 2026), at least two weeks prior to NTP 2
  - Scope is partial fleet maintenance equipment and anything remaining that SFMTA wants to keep, TBD following Phase 2 relocation.
  - All dates are subject to change. Currently dates are based on the assumption of NTP 1 by April 17th

SCOPE:

- SFMTA will self-perform Phase 1 move around February 14, 2026 and will self-perform Phase 2 move around April 15.
- Phase 3 will be performed by NPE. Scope will be whatever remains at the existing Potrero Bus Yard move that SFMTA wants to keep after Phase 2.
- Most equipment and contents are not necessarily moving with employees, but from one terminal to another or to storage. With the

exception of MME, the destinations are all working bus terminals and will have full, on grade truck access. Long-term storage content and equipment will move into shipping containers located on the MME site.

- SFMTA division staff will determine what content and equipment they need to relocate to other facilities for active use and to deep storage within containers at MME.
- Anything not programmed for retention or storage, will be left in the existing Potrero Bus Yard for subsequent decommissioning / demolition.

NPE Scope of Services

1. Client Move Team & Division Reps Meetings – on-going
2. Move Matrix: From-To
3. Move Vendor Coordination
4. Migration Schedule(s)
5. Relocation Package (aka Label Training)
6. Move Supervision – On-Site Supervisors on physical move days
7. Post-Move Support

Project activities:

1. **Client Move Team & Division Reps Meetings & Coordination**: NPE shall hold team meetings, described further below, designed to promote discovery, open-ended discussion and collaborative decision-making that informs the final move management strategy. Planning teams fall under two categories: Move Team and Division Representatives.

    - **MOVE TEAM**: (Meetings every other week online)

      Move Team meetings, consisting of key decision-makers representing various aspects of the project, ensure two-way information exchange and facilitate discovery and resolution on all topics related to the move such as timelines for MME preparation, Bayshore build-out for Fare Box, etc. Core members will include SFMTA leadership led by the City Representative (and any Division leaders at City Representative discretion), NPE, PPC, D&C Contractor, and any specialized move subcontractor/specialist as necessary. NPE will manage these meetings. The City Representative will be a critical asset to get participation and/or direction from senior City decision-makers.

    - **DIVISIONAL REPRESENTATIVES**: (Weekly meetings online and on-site)

Following Relocation Phase 2 and NTP 1, NPE will conduct periodic meetings with representatives from each relevant SFMTA Division. Some divisions will have already completed work and/or may not need many meetings. These representatives also serve as key conduits taking important move-related information back to their individual teams. Division Reps become "experts" on all things pertaining to the move and become the first stop for Q&A for their department members.

2. **Move Matrix:** NPE shall create and circulate a Move Matrix document, also known as the "From-To List," to ensure all locations, personnel, content and equipment getting moved to destination locations is identified and tracked. NPE must document all content and equipment at the existing Potrero Bus Yard in the Move Matrix. The City must then assign move actions to each line-item denoting "Reuse", "Storage", "Discard/Trash".

   After the Relocation Phases 1 and 2 are complete and NTP 1 is achieved, the City (i.e. SFMTA Division Reps) will update the Move Matrix to reflect all items moved out of Potrero and further define the remaining items. Critical information will be an update to Action, Phase, and Destination. This updated Move Matirx will be provided to NPE no later than 21 Days from NTP 1. NPE must then confirm the SFMTA Move Matrix in consultation with Division Reps in person at the Project Site.

   - **SFMTA Deliverable:** City will provide NPE with an updated Move Matrix 21 Days from NTP 1, following the self-performed Relocation Phases 1 and 2 moves.

3. **Vendor Coordination:** NPE shall coordinate move vendor work surrounding SFMTA's relocation for Phase 3 in June 2026. NPE shall provide a primary vendor interface with the move vendor and must be in constant communication for scope communication, labor scheduling, special equipment needs and for overseeing all vendor activities throughout Relocation Phase 3.

   - NPE shall do a final walk through of Origin and Destinations 2 – 3 weeks prior to the move date (est. walk through in June 1-4 assuming NTP 1 date remains April 17, 2026)

4. **Migration Schedule:** A successful move relies on a clear schedule and prompt communication among all stakeholders. NPE shall craft a Migration Schedule that details all the move activities during Phase 3. These schedules will feature a clear sequence of tasks and ownership to ensure accountability across vendors and division reps. NPE shall ensure

the migration schedule is effectively communicated to all parties involved in the move.

- Migration schedule must be complete 1-2 weeks before Phase 3 begins and be presented to the Move Team and Divisional Reps. (est. June 12th)

5. **Relocation Package:** NPE shall create a comprehensive labeling plan for Relocation Phase 3 with clear instructions for Division Reps. Each destination will be assigned a different color to allow for fast and accurate move. NPE shall review instructions and expectations with all Reps to ensure full understanding.

    - NPE shall present the Relocation Packages to relevant groups during Division Rep Meetings (est. June 1 - 4)
    - NPE shall be on-site the week of June 1 - 4 to assist Division Reps with accurate labeling of all items.

6. **Move Supervision:** NPE shall provide site supervisors at the origin and destination locations throughout the move to ensure that the move plan is followed precisely. Our site supervisors will uphold project goals by ensuring compliance with the Migration Schedule, effectively communicating with Move Team & vendors, and troubleshooting as necessary. NPE shall identify a Lead Site Supervisor responsible for supervising the move.

    - UPDATES: At the end of each move day the Lead Site Supervisor shall send a report to core team members with updates on the day's progress, documenting any outstanding items, and outlining the objectives for the following day. Updates are crucial for maintaining organization, facilitating issue resolution, and ensuring clear communication among the team.

7. **Post-Move Support:** NPE shall provide a move project manager that will provide on-site and/or online support, working with the Move Team, Division Reps, and on-site vendors to liaise and problem-solve. NPE shall document and direct issues to the appropriate resource for resolution and provide a punch list to the City and SFMTA Division Reps at end of day for post-move follow-up.

Division 8: *Not Used*

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Division 9: SFMTA's Communications Division's Public Outreach and Engagement Requirements (POER) v.1.0

Public Outreach and Engagement Requirements



v.1.0

POETS

Public Outreach
& Engagement
Team Strategy

SFMTA

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Note to PPC:
The following hyperlinks have been eliminated because they are only for internal use of SFMTA staff.

- Appendix
- Intranet
- Calendar

Introduction

The San Francisco Municipal Transportation Agency (SFMTA) is committed to involving the people of San Francisco in the decisions that shape the city's transportation system. This commitment is expressed in the agency's Strategic Plan and through our ongoing investment in the Public Outreach Engagement Team Strategy (POETS). It is based on an understanding that:

- Those who are affected by government decisions should be informed and have an opportunity to participate in the decision-making process;
- The community's trust in the public process directly affects our ability to deliver projects; and
- Most projects must meet legal requirements related to public notification and participation.

The agency's approach to working with the communities we serve is reflected in our core values:

RESPECT
We are courteous and constructive in our treatment of others. We recognize that our colleagues and their contributions are vital to the agency. We listen and directly engage our colleagues and the public to understand their needs and deliver effective services.

INCLUSIVITY
We seek a variety of identities, abilities, and interaction styles to promote a diverse and fair workplace. We operate from the context of teamwork and positive intent. We serve the public and address historic inequities in transportation by including all communities in the agency's decision-making processes.

INTEGRITY
We are accountable for and take ownership of our actions. We are responsive and honor our commitments to our colleagues and stakeholders. We are transparent and honest in everything we do, from internal operations to external delivery.

To ensure consistent public communications and outreach across projects, the SFMTA established our Public Outreach and Engagement Team Strategy (POETS). The main components of POETS are: **Requirements** for every project, **Resources** to support staff, **Relationships** with the community, and **Recognition** of outstanding work.

This document presents the requirements for public outreach and engagement that every SFMTA project is expected to meet. More information about the other components of the Public Outreach and Engagement Team Strategy, including supportive resources and recognition opportunities for staff, can be found on the POETS page located on the SFMTA intranet. The process of developing the SFMTA's requirements and guidance involved extensive feedback from the community. It is strongly recommended that you review the summary of this valuable input in the Appendix.

Public Outreach and Engagement Requirements

To ensure a consistent approach throughout the agency, all managers and leads responsible for SFMTA projects that impact the public must ensure that their project teams do the following:

- **PLAN** for public outreach and engagement for the project
- **IMPLEMENT** the public outreach and engagement plan
- **DOCUMENT** the implementation of the plan and the feedback received

Develop the Plan

Every SFMTA project must develop a Public Outreach and Engagement Plan at the outset of the project, and the project team must evaluate and revise the plan at each subsequent project phase. The plan should be reviewed within the division by the direct report manager and/or the POETS Division Lead. Each division is responsible for establishing a process to determine when a Public Outreach and Engagement Plan is considered complete and ready for submission to the POETS webpage. Whatever the protocol for deciding who submits the plan, the project manager/lead is ultimately accountable for ensuring that it occurs. **When the Public Outreach and Engagement Plan is considered complete according to the division's process, it must be uploaded to the POETS page on the SFMTA intranet, where all Public Outreach and Engagement Plans are tracked. Keep in mind that every plan is a public document and may be reviewed at any time by SFMTA leadership and staff, city partners and members of the public.**

To help empower staff to meet these requirements, the agency provides a Guide and Template for creating a Public Outreach and Engagement Plan. These companion documents include guidance on doing a project needs assessment to identify stakeholders and impacts, writing a project brief, crafting key messages for target audiences, identifying the opportunities for public participation, selecting outreach and engagement techniques, establishing goals and measurable objectives, scheduling activities and tasks, evaluating the plan, and reporting back to the public.

At a minimum, every Public Outreach and Engagement Plan MUST include:

- Identification of who should be involved in developing the plan (staff, consultants, partners)
- Identification of project stakeholders, impacts, and decision space
- Early engagement of key stakeholders
- Use of multiple communication channels to reach audiences
- Compliance with language & accessibility requirements
- Consideration of the Racial Equity Action Plan and Toolkit
- Goals and measurable objectives for each phase of the project
- A method to document plan implementation and to collect data related to goals and objectives
- A strategy for outreach during all project phases, including detailed design and construction
- Sufficient budget to carry out the activities specified in the plan
- Coordination with other SFMTA projects that affect the project
- Coordination with other city partners who will be involved with the project

- A report submitted to the POETS webpage after each project phase

It is important to emphasize that the development of the Public Outreach and Engagement Plan should be a team effort. Those staff members who will be directly involved in the implementation of the plan should have input in the creation of the plan. Several aspects of the plan require careful consideration and judgement without hard and fast rules (e.g., stakeholder identification, impact analysis, budget). Involvement of key team members (including any consultants and partners) allows for a thoughtful and collaborative process and lays the groundwork for better understanding and successful implementation of the plan. In the case of projects with significant impacts on the community, it is also advisable to consult key stakeholders for their input as the plan is being developed (e.g., for advice on the most effective ways to keep particular communities informed).

Note that it is not mandatory to use the specific planning Template offered by POETS, but any Public Outreach and Engagement Plan must include comparable content regardless of the format, and any document used to satisfy these requirements must be uploaded to the POETS page on the SFMTA intranet. The Guide and Template provide detailed instructions for the content of any Public Outreach and Engagement Plan.

Programmatic Public Outreach and Engagement Plans

Every SFMTA project that impacts the public must implement its Public Outreach and Engagement Plan. Larger, more complex projects require their own detailed plans. In addition to large projects, the SFMTA routinely implements many smaller, similar projects (e.g., stop signs, signal changes) that can rely on a single, programmatic Public Outreach and Engagement Plan. Divisions that deliver such projects should develop programmatic outreach and engagement strategies that apply to typical projects in each category. Every small project must still consider community impacts, but the programmatic plan can be used as a template by each project. Only the programmatic plan that will serve as the template for projects in a given category must be uploaded to the POETS page on the SFMTA intranet, not the plans for each project. However, every project that falls within a program category must have a plan based on the programmatic template. While project teams are not required to upload each plan to the POETS webpage, they are responsible for implementing the plan and can be held accountable. Project teams should also report to POETS Division Leads any lessons learned from individual projects that suggest changes needed to the programmatic plan template going forward.

What is a "Project"?

For the purpose of these requirements, the SFMTA defines a project as, "A one-time effort to construct, acquire, replace, improve, expand, or rehabilitate the transportation system in the City and County of San Francisco." The Public Outreach and Engagement Requirements apply to all capital projects, as well as one-time policy initiatives that are not capital in nature (including those that occur in multiple phases). Smaller, routine "projects" are sometimes classified as "operations." Regardless of terminology, any action that impacts the public is subject to compliance with the Public Outreach and Engagement Requirements. As discussed below, there are specific guidelines for smaller, routine projects.

Review the Public Outreach and Engagement Plan between Phases

The initial Public Outreach and Engagement Plan should describe the plan for public outreach and engagement for each phase of the project, with the assumption that the strategy for later phases will be adapted based on what is learned during implementation of earlier phases. The Public Outreach and Engagement Plan should be reviewed and updated at the end of each phase of the project. In cases where projects transition from SFMTA to another agency between phases, it is essential to coordinate with those city partners to maintain a consistent standard of outreach and engagement, even if the SFMTA is not the lead agency during a particular phase of the project. In order to achieve a successful transition for larger projects, POETS recommends funding for a Public Information Officer to work with the city partner(s) throughout the transition and until project completion.

There are good reasons to review the Public Outreach and Engagement Plan between phases. First, it gives the project team an opportunity to think about lessons learned at the completion of each phase and to incorporate those lessons into the next phase. Second, there is understandable uncertainty at the beginning of a project about the kind of public outreach and engagement that will be necessary during later phases (especially if the project will take years to complete).

Internal Coordination

In planning for public outreach and engagement for a single project, it is important to know which other teams and projects within the SFMTA (including those in different divisions) might connect with, intersect or impact your project. Brief related staff and teams on your Public Outreach and Engagement Plan as early in the process as possible.

Challenging Phases: Detailed Design and Construction

For projects that take years to complete, it is impossible to anticipate all aspects of outreach and engagement that will be needed to complete the project. The most challenging phases to include in the initial plan are detailed design and construction. While decision space is typically less during these phases (plans have been made, the project is legislated), it is essential to keep stakeholders informed and to continue to engage the community beyond the planning phase.

During the detailed design phase, it can feel to the community like the project is inactive. It is not uncommon for this phase to continue for several years, during which the community itself changes (there are new residents and merchants who never heard of the project and were not part of the planning phase). During the construction phase, project impacts are felt most acutely by the community and there may be new stakeholders affected who were not involved during project planning. Because these phases present unique challenges, the project team should closely review the original Public Outreach and Engagement Plan before detailed design and construction to create a more detailed and updated strategy. The Appendix provides examples of plans for the detailed design phase.

The City and County of San Francisco Construction Mitigation Program defines the measures that are required for construction mitigation for various kinds of projects (low, moderate and major impact). Construction Mitigation Plans should be created in advance of construction, developed in collaboration

with merchants and residents, and budgeted separately from the initial Public Outreach and Engagement Plan. The Appendix includes a summary of the program, along with a presentation and example plans.

Submit the Plan

Every Plan must be uploaded to the POETS webpage upon completion and prior to implementation. The process of approving and submitting the plan is left to the discretion of each Division. Each division must determine its own protocol for deciding when a Plan is complete and ready to be submitted. Regardless of the division's process, project managers/leads are accountable for compliance at the project level.

Implement the Plan

Once your Public Outreach and Engagement Plan is submitted to the POETS webpage, the project team is responsible for carrying it out. As noted above, the project manager/lead is ultimately accountable for implementation of the plan. The Public Outreach and Engagement Guide and Template provide advice and tools designed to help schedule and track activities. In addition, the SFMTA Public Outreach and Engagement Manager, the POETS web page, Division Leads and District Liaisons can offer information and contacts to project teams as they implement their plans. The role of the POETS Division Leads is to ensure compliance with these requirements within each division and to provide support to project managers/leads and their teams, including referrals to appropriate resources. District Liaisons are designated staff members within the SFMTA who can provide geographically specific information and contacts to project teams.

Compliance with Language Assistance Requirements

As a city department that receives federal funding, the SFMTA must follow both local rules (San Francisco's Language Access Ordinance) and federal rules (Title VI of the Civil Rights Act of 1964 and supporting guidance) regarding accessibility to our programs and services to ensure that all customers, regardless of their ability to read, speak, write and understand English ("limited-English proficient" or "LEP"), are informed and able to participate in our agency's decision-making processes. The SFMTA's 2016 Language Assistance Plan (LAP) details the agency's policies about providing both written (translations) and verbal (via interpreters or bilingual employees) language assistance for our limited-English proficient customers and other stakeholders.

The Language Assistance Plan includes maps detailing concentrations of limited-English proficient communities by language, which can be used as a resource when determining the language needs of those who are affected by the project. In general, and at a minimum, most public information pieces should be translated into Chinese, Spanish and Filipino (Tagalog), and all public communications and meeting notices must include the 311 "Free Language Assistance" tagline (included in the Public Outreach and Engagement Plan Guide). Public meeting and hearing notices and agendas, including those posted at SFMTA.com, must include the four-language 48 hours' notice and a staff person's phone number for requesting language assistance; LanguageLine telephonic interpretation services can be used to process requests from limited-English proficient customers via phone. The Appendix provides a LanguageLine

reference sheet and includes all language assistance taglines. Depending on content, transit related public information pieces might require additional translation support.

When considering language accessibility, the agency provides resources and training to assist with implementation. Guidelines and tips to providing language assistance can be found in the Appendix. Specific language assistance questions and requests for individual consultation or staff training should be directed to SFMTA Regulatory Affairs Manager Kathleen Sakelaris at Kathleen.Sakelaris@sfmta.com or 415.701.4339.

Planning for Equity

Regardless of the specific activities outlined in your Public Outreach and Engagement Plan, its implementation must be inclusive and equitable. The plan should include methods for soliciting feedback that engage and are accessible to those who have historically been underrepresented in the public process, including low-income households, people of color, youth, seniors, and people with disabilities.

The core principle that informs the practice of public outreach and engagement is that those who are affected or have been historically disenfranchised by government decisions have a right to be included in the decision-making process.

The SFMTA has worked with the Local and Regional Government Alliance on Race and Equity (GARE) to develop a Racial Equity Action Plan and Toolkit that promotes diversity and inclusion internally and with the communities we serve. This signals the agency's intention both to apply a racial equity lens to project-level planning and implementation, and to build the organization's capacity and skills to achieve greater equity as an overall outcome of our work.

While it may be more difficult and require more resources to reach and engage members of underrepresented communities, it is essential to make a deliberate effort to do so. Equity should be a primary consideration in establishing goals and objectives for the plan, and project teams should measure success with appropriate data. Teams should also seek to partner with stakeholders in developing and implementing the plan in order to achieve results that are meaningful to the community.

Required Notification

When implementing any plan, the legal minimum distance for notification about the project should be treated as a starting point. In some cases, those neighborhoods and stakeholders who are affected by the project will extend beyond the minimum required distance, warranting broader notification. All Public Outreach and Engagement Plans — including programmatic plans for smaller projects — require an assessment of the project's impacts. The expectation is that every project team will plan for notification based on a thoughtful consideration of the anticipated impacts of the project and those community members who will actually be affected.

Online Presence

Every SFMTA project is required to have an online presence, either a page on the agency website or an equally accessible and comparable alternative. At a minimum, the information posted online should include a project description, project history and current phase, opportunities for public input, and contact information for the project manager/lead and anyone else who is responsible for answering

questions about the project. If the website is designed to receive written questions or comments, it must be monitored regularly so that staff can reply in a timely manner if a response is appropriate.

SFMTA Calendar

Every public meeting associated with the project must be posted on the SFMTA master calendar at least as early as the meeting is announced through other channels.

Document the Plan

Project teams must track key indicators related to outreach and engagement by documenting:

- How the Public Outreach and Engagement Plan was implemented (and any changes in implementation from the original plan)
- Any input received from the public
- How public input influenced the project (and the reasons why or why not)
- How public input was presented to decision makers
- The indicators established for the plan's goals and objectives

At the end of each project phase the team must complete a brief summary of lessons learned and recommendations for the next project phase. When you complete this brief report ("Plan Evaluation" on page 11 of the Template), submit an updated version of your plan (including answers to the evaluation questions and any revisions to the plan itself) to the POETS web page. Add a date to the file name to distinguish it from previous versions.

Close the Feedback Loop

From the community standpoint, documentation of public input is essential to closing the "feedback loop." If the plan calls for public consultation, the stakeholders who participate should know how their input was conveyed to decision makers and whether it had any influence on the outcome. This can only happen if the project team documents public input and the process by which they took it into account. For this reason, the Public Outreach and Engagement Plan should always include a plan to report back to stakeholders at the end of each project phase.

From an internal perspective, planning for public outreach and engagement is an ongoing process, and each project team is expected to review and revise previous plans as the project moves through each phase. To make informed decisions, the team needs to know what was learned from public participation in earlier phases. Documentation at the project level also supports an accumulation of lessons throughout the agency that can inform future practice on other projects. It also provides elected and appointed officials with essential information to inform their decision-making.

Accountability

All SFMTA projects that impact the public are subject to the Public Outreach and Engagement Requirements. Project managers are accountable for meeting the requirements, and failure to adequately plan for and implement public outreach and engagement can jeopardize project funding and delivery at any phase.

A General Notice from the Project Management Office specifies procedures to ensure compliance with these requirements. It states that the needs assessment should be conducted at project inception, and the expected cost of outreach and engagement should be included in the original project budget. The Public Outreach and Engagement Plan must be integrated into the project's pre-development report, ensuring that it will be completed no later than the end of the planning phase.

Throughout all phases of the project, there are multiple opportunities for review of the Public Outreach and Engagement Plan. These include:

- Review of funding requests for planning and preliminary engineering through the Project Integration Committee and the Transportation Capital Committee;
- Review of phase milestones by the Project Management Office before approval of funding for subsequent project phases;
- Review of project implementation by the Project Delivery Technical Advisory Committee;
- Interdepartmental reviews of proposed street changes by the Transportation Advisory Staff Committee (TASC) and related internal reviews by the Pre-TASC Engineering public hearings;
- Development of a Construction Mitigation Plan, which is explicitly required to comply with the Public Outreach and Engagement Requirements.

In addition to these structured opportunities for review, every plan is subject to random audit by agency leadership. The POETS team is available to provide support in developing strategies and budgets for outreach and engagement to ensure that projects comply with the requirements.

Conclusion

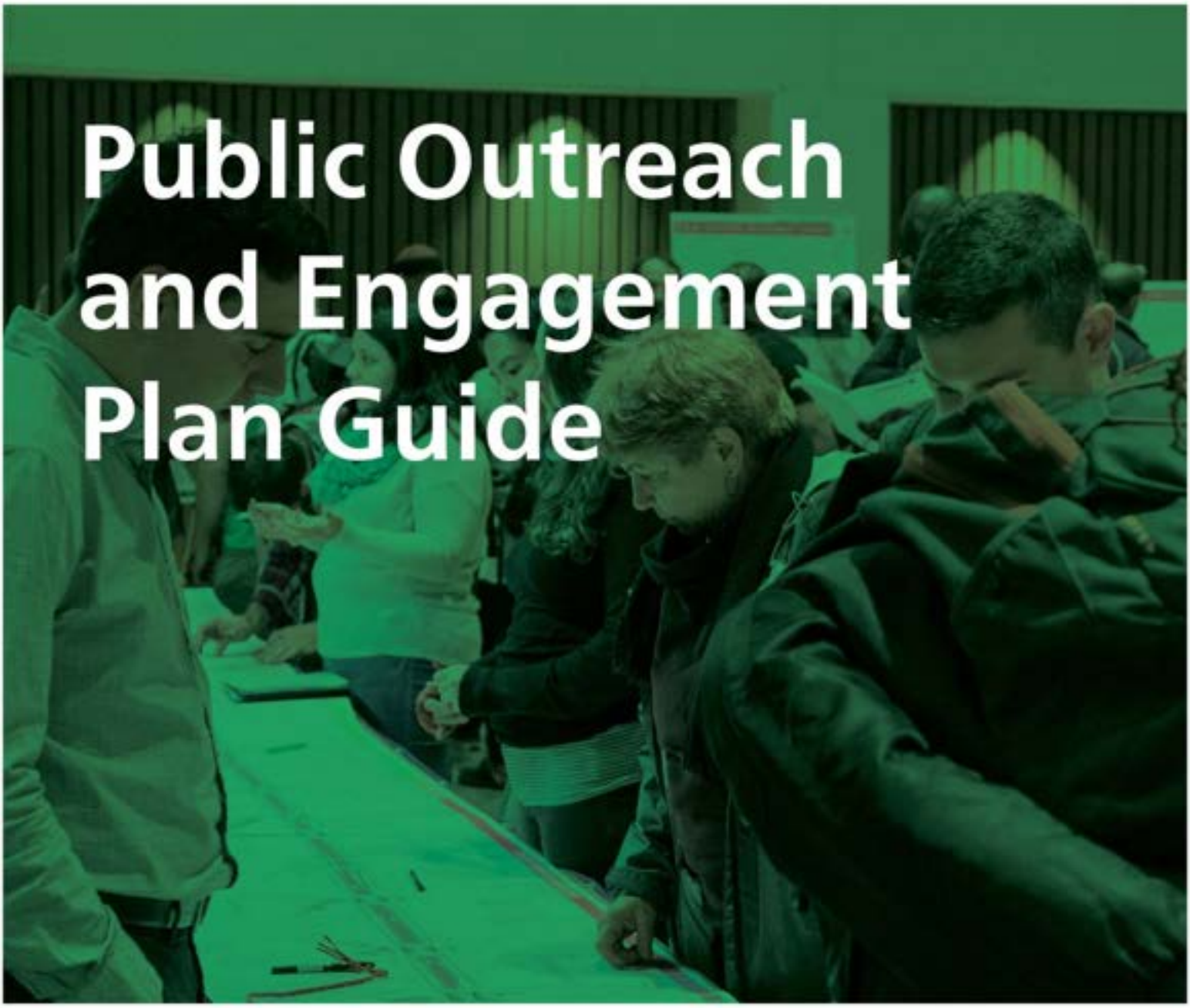
These requirements are meant to hold the SFMTA to a high standard of practice for public outreach and engagement. At the same time, the POETS program is designed to give staff members the support they need to meet the requirements. The Public Outreach and Engagement Plan Guide and Public Outreach and Engagement Plan Template, companion documents to these requirements, provide a blueprint for how to develop, implement and document an appropriate strategy for each project. In addition, the POETS team and Division Leads are available to offer guidance on an ongoing basis as project teams create and revise their plans. As part of that support, the POETS webpage includes a wealth of resources and training opportunities available to staff members who work with the public.

The purpose of the Public Outreach and Engagement Requirements is to ensure that those who are affected by the SFMTA's decisions and actions are included in the decision-making process, and that the

interests of the community are carefully considered as the agency carries out its mission of maintaining and improving San Francisco's transportation system. A related goal of these requirements is to give every SFMTA project the best possible chance to be delivered smoothly, anticipating challenges and avoiding extreme course corrections. Thoughtful planning is the key, and the needs and concerns of the community must be an integral part of that process. In the end, the POETS approach of establishing high standards and providing the necessary support to meet them is intended to strengthen the position of staff who are responsible for working with the public. By taking the time up front to plan for meaningful public outreach and engagement, project teams are more likely to have a positive experience in the community and will be more confident and better prepared to deliver their projects with outstanding results.

Division 9 – Exhibit A
Public Outreach and Engagement Plan Guide

Public Outreach and Engagement Plan Guide



v.1.0

POETS

Public Outreach
& Engagement
Team Strategy

SFMTA

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Introduction

The San Francisco Municipal Transportation Agency (SFMTA) moves nearly a quarter million people daily within the city of San Francisco. To fulfill the agency's mission to "connect San Francisco through a safe, equitable, and sustainable transportation system" the agency undertakes more than 200 projects at any given time, including major transit corridor investments, safer designs for local streets, and improvements to all modes of transportation throughout the city.

As the transportation agency for the City and County of San Francisco, the SFMTA has a responsibility to keep the public informed as part of our work. The agency is committed to fulfilling these responsibilities and going above and beyond to engage the public in our work. We are committed to strengthening and sustaining our relationships with the community and to ensuring that the agency delivers quality transportation projects to those who need them. This commitment is expressed in the SFMTA's Strategic Plan and through our ongoing investment in the Public Outreach and Engagement Team Strategy (POETS).

The purpose of this document is to guide those staff members who conduct public outreach and engagement and clarify the agency's expectations for what must be included as part of the public outreach and engagement planning process. This guide is a companion to the Public Outreach and Engagement Plan Template, which project teams can use to develop a plan that meets our agency's requirements for conducting public outreach and engagement. The Public Outreach and Engagement Requirements outline what is expected to occur as part of agency outreach to the public on any given project.

The first section of this document provides instructions for using the fillable Template to create a Public Outreach and Engagement Plan. The second section presents general principles, practices and tips to consider when developing a plan. The final section summarizes the "Spectrum of Public Participation," a helpful framework for thinking about your plan's purpose and goals.

The process of developing the SFMTA's requirements and guidance involved extensive feedback from the community. The agency heard from a range of diverse voices – those who both benefit from our work and are impacted by our projects. A summary of this valuable community input is included in the Appendix.

Guide to Public Outreach and Engagement Planning

This section provides a step-by-step guide to develop a project-level Public Outreach and Engagement Plan in accordance with the agency's Public Outreach and Engagement Requirements. Each heading below corresponds to the Public Outreach and Engagement Plan Template, which provides a format for writing a project-level plan. This section supplements the instructions in the Template.

When a project's Public Outreach and Engagement Plan is complete, it is mandatory to submit it to the POETS webpage on the SFMTA intranet here. Note that each division determines its own process for deciding when a plan is ready to be uploaded and who is responsible for doing so. Keep in mind that the Public Outreach and Engagement Plan is a public document and may be reviewed by SFMTA leadership and staff, city partners and members of the public.

Project Overview

The purpose of the Project Overview is to summarize the project scope, purpose, benefits and timeline. It also includes some early considerations about decision space – constraints and decisions that have already been made, and decisions that are yet to be made. When preparing this information, take into consideration that the overview may be used for the project webpage, fliers, etc. Note that the next step (Project Needs Assessment) adds valuable information – project impacts, stakeholders, opportunities for public input – that can be added later to the basic information in the Project Overview.

Project Needs Assessment

A Project Needs Assessment is critical to the planning process. It is your chance to think carefully about those who will be affected by the project, the purpose of your outreach and engagement strategy, and the relationships that will matter most for the success of the project.

The Project Needs Assessment should help to identify three things: stakeholders, impacts and decision space. Note that while the Template presents the identification of these as sequential steps, they are in fact interdependent, and the assessment should be more iterative than linear. As you complete the following steps, consider how each of the components informs the others. For example, understanding what decisions the public can influence might affect the potential impacts and identification of stakeholders.

> Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
>
> - IAP2 Core Value

Within the Project Needs Assessment, the **stakeholder analysis** identifies those audiences that need to be informed and/or engaged. It also suggests a method of gauging the level of outreach that is required. Research on stakeholders should clarify their roles, the degree to which they are organized, their capacity to participate, and specific considerations for ensuring an inclusive and culturally appropriate public process (language, accessibility, barriers to participation, etc.). The Template helps to

identify which key stakeholders should be contacted early on, to make them aware that the project team will be reaching out to the community. Valuable internal resources to help gather the information for the stakeholder analysis include the Public Outreach and Engagement Team, District Liaisons, POETS Division Leads, and the Regulatory Affairs Manager (for help with language access).

The **impact and interest analysis** in the Project Needs Assessment suggests how extensive the outreach and engagement effort should be, and the level of resources that will be needed to carry it out. The table in the Template is designed to be a starting point for discussion among members of the project team. Once you answer the ten questions about anticipated impacts and the level of public interest in your project, you will end up with an average score on a scale of very low to very high. While there is no hard and fast rule about how to interpret this number, a higher score generally suggests that more effort and resources will be needed for community outreach. Answering the diagnostic questions as a team (including the project manager, communications lead, relevant consultants and any staff members who will be doing outreach and engagement) will give you the best chance possible to accurately gauge the public's response to your project.

The **decision space analysis** in the Project Needs Assessment identifies the opportunities for stakeholders to provide input and potentially influence the project. Decision space is normally limited by a variety of constraints: agency goals, direction from policymakers, previous decisions, legal requirements, technical feasibility, available budget, etc. Within these constraints, it is always important to consider whether the decision space can be expanded beyond simply telling the public what is going to happen. Even during construction, when decision space is typically most limited, there might be room to consider input on timing, sequencing or mitigation to address community concerns. One reason for seeking to expand the decision space is to demonstrate the agency's commitment to listen to the public. Another is that community members often have good ideas that can strengthen the project and help you deliver it successfully.

The analysis of impacts and interests is closely connected to decision space. In general, greater impacts and higher levels of concern will raise expectations and put pressure on the project team to give the public a say in shaping the project. It is much easier to suggest that the purpose of outreach is only to inform the public when there are few negative impacts and minimal interest in the project, Therefore, given the constraints that limit decision space, there is a tendency for a higher score on the impact and interest analysis to be associated with a higher level of engagement on the spectrum of public participation described below. In other words, the project impacts and level of public concern are not the only factors that determine decision space, but they are critical to consider in the analysis.

Goals and Objectives

The Project Needs Assessment provides the information needed to establish goals and objectives for the Public Outreach and Engagement Plan. This can be the most difficult task in developing the Public Outreach and Engagement Plan, for at least two reasons. First, it only makes sense to establish goals and objectives if they can be measured. This means that metrics need to be realistic, so that information and data can be gathered to evaluate the success of the plan. Second, it is important to have goals and objectives that are meaningful. The key metrics should measure not only the activities of outreach and engagement (How many people did we reach? How many people attended our meetings?) but also measure the results that matter (How did public input affect the final project? Did our outreach and engagement provide helpful input to decision makers?).

This section provides a brief guide to setting goals and objectives for a Public Outreach and Engagement Plan. The approach is to (1) Keep in mind the agency's goals for working with the public, (2) Establish project goals that correspond to the "levels of participation" on the IAP2 Spectrum, and (3) Establish project objectives that can be realistically measured and related to the project goals.
Every Public Outreach and Engagement Plan should consider the broader agency goals for communication and public participation as expressed in the SFMTA's Strategic Plan and Public Participation Plan. Keep this agency-wide context in mind as you develop project-level goals and objectives.

Strategic Plan Goal 4.0, Objective 4.3 commits the agency to enhance customer service, public outreach, and engagement: "Effective communications and consistent messaging can create meaningful opportunities for community input, give policymakers the information they need to support their communities, and improve the agency's projects and service delivery. Not only is community engagement critical in developing near- term projects that serve the community, it can also benefit long-term, comprehensive efforts related to safety, transit service, and mode choice. Placing this objective in Goal 4 underscores the agency's commitment to not only improve agency communications and engagement processes, but to also overhaul the agency's internal communications processes to better serve the public and agency staff."

The SFMTA Public Participation Plan emphasizes the agency's commitment to inclusion, equity and accessibility. Planning for every SFMTA project should meet these expectations. In practice, this means that project teams should consciously address barriers to participation and should make deliberate efforts to reach out to communities that have been historically underrepresented in the public process.

The **goals** of public outreach and engagement for a specific project should correspond to the four levels of public participation on the IAP2 Spectrum: Inform, Consult, Involve or Collaborate. The identification of goals comes directly from the Decision Space analysis in the Project Needs Assessment. Every Public Outreach and Engagement Plan should have the goal to **inform** the public about the project. In addition to informing, most projects will also have an opportunity for the public to provide input that might influence the project. Therefore, most projects will also **consult** to some extent as a goal of the project, with the parameters for potential public influence (the Decision Space) clearly defined. Some projects will also present further opportunities for public partnership and influence, meaning that the goals for public participation might be to **involve** the community or to **collaborate** with stakeholders.

> "Reach out and listen to people, don't just 'educate' them."
>
> - Stakeholder Feedback

The **objectives** of public outreach and engagement for a specific project should be meaningful and measurable. Objectives should have a meaningful relationship to the goals of the Public Outreach and Engagement Plan (How do we know that the public was informed or consulted? What did we hear that would be helpful to decision makers?). Objectives should also be measurable. Measures can be quantitative (How many people did we reach through various communications channels?) or qualitative (How did the project change as a result of public input?). The key is to create objectives that are linked to the goals for the plan, and that can be documented and communicated to decision makers and the public.

Some examples of Objectives that could correspond to Goals:

- Number of those reached through communications channels and attending meetings
- Number of users accessing the project webpage; number providing online feedback
- Percentage of stakeholders surveyed at meetings who feel informed about the project
- Specific ways that public input influenced the project (a "We Listened" category)

Key Messages

Design your key messages about the project for both general and specific audiences, building on the Project Overview. Keep in mind that the most important consideration is the desired impact of the communication effort within the overall Public Outreach and Engagement Plan. For every project, the goal of communication is to inform the community about the project, its benefits, its impacts, and opportunities for formal public comment. Plans that also call for consulting or involving the community during project planning will require additional information and communication to support an engagement strategy. Successful messaging is not just about content, but also the impact of communication. In all cases, it is important to be consistent and transparent in messaging – providing the community with a clear path to information and staff contacts – in order to build trust throughout the life of the project.

For almost any project, key messages include:

- Purpose and benefits of the project
- Anticipated impacts of the project
- Project timeline and current phase
- Opportunities for public participation
- Project contacts (who and how to reach them)
- Project webpage (how to access further information online)
- Specific messages for specific audiences

In general, key messages should be concise (a few short statements that are easily understood), relevant (limit information to what is essential), compelling (lead with benefits and highlight opportunities for public input) and tailored to the audience (with special consideration of language needs). Use plain language and avoid jargon and acronyms. It is always advisable to check your messages with representatives of the audiences you are trying to reach.

Outreach and Engagement Techniques

The selection of outreach and engagement techniques should be based on the Project Needs Assessment and the project goals and objectives. When the goal is to inform, the techniques used should be tailored to specific audiences. When the goal is to invite feedback from stakeholders, the plan should include techniques and tools designed to gather and compile public input, and it should be specific about the kind of feedback that could affect the project.

The field of practice offers a wide variety of techniques and tools to choose from. The key is to think carefully about the intended purpose of public participation at each phase of the project, and to select

techniques, tools and meeting designs that fit the project goals while getting information to stakeholders in the way they prefer to receive it. Regardless of other considerations, our stakeholders report that all flyers and posters should use large print and plain language, and they should be placed in multiple locations and at various heights. In addition, all electronic communication should be reviewed for accessibility.

The Appendix provides several resources to help you think about techniques: (a) a summary of communication techniques that are commonly used for SFMTA projects, (b) a description of various outreach techniques, engagement strategies and meeting formats that correspond to different goals on the public participation spectrum, and (c) guidance for making meetings accessible.

Schedule and Responsibilities

Once the goals for public outreach and engagement have been determined and the methods have been selected, the next step in developing the Public Outreach and Engagement Plan is to create a schedule of activities and assign responsibility for implementation tasks.

The schedule should be detailed enough to be useful to the project team, but also appropriate as a tool to report to stakeholders, agency partners and decision makers. It should include the timing of specific communications efforts, outreach to key stakeholders, and key meetings or events. It should also note those activities that are ongoing throughout the duration of the plan, as distinct from communications for a specific meeting or event.

Project teams may use their own formats (or those provided by consultants) to track detailed tasks, individuals responsible, and due dates. The format for your project's outreach and engagement strategy can be a single spreadsheet, or a combination of tables for different tasks. The format is less important than the content: When do activities need to happen and who is responsible for carrying them out? When planning public meetings, the action plan should highlight dates for inviting participants, arranging meeting logistics, producing meeting materials, recruiting facilitators, etc. One approach is to create a summary timeline and a separate, more detailed production schedule for individual tasks.

Budget

The budget for Public Outreach and Engagement can be estimated based on the size and scope of the project, as well as the extent of activities in the Public Outreach and Engagement Plan. Costs can vary widely based on staff time, communications collateral, language support, online engagement, and the number of public meetings held.

As noted above, it might be necessary to estimate the budget for public outreach and engagement before the plan is fully developed. To ensure adequate resources are devoted to outreach and engagement (including for language translation and interpretation), it is critical to conduct a Project Needs Assessment as early as possible. If your project requires a budget estimate before the Public Outreach and Engagement Plan is complete, the POETS team or your POETS Division Lead can provide guidance.

Plan Review

Once the Public Outreach and Engagement Plan has been drafted, it is important to review it within the SFMTA before moving to implementation. As a practical matter, the plan should be developed in concert with all of the team members responsible for carrying it out (including staff and consultants), and ideally in consultation with key stakeholders. As noted at the outset of this Guide, one of the first steps in developing the Public Outreach and Engagement Plan should be to identify all of those individuals and groups who should be part of the conversation before the plan is developed and approved.

Any project that will transition from the SFMTA to another city agency (e.g., between legislative approval and construction) must address this transition in its Public Outreach and Engagement Plan. As early as possible, the project lead should meet with city partners to establish roles and budget responsibilities.

The project lead should meet with the District Liaison for the project area to be aware of any other SFMTA projects that might affect your project. If there are intersecting projects, the outreach and engagement activities for both should be coordinated to the extent feasible.

It is always a good idea to review the draft plan with an experienced colleague. Consider reaching out to your POETS Division Lead, a public information officer, or the POETS team if you have questions or challenges while completing your plan.

Once the Public Outreach and Engagement Plan is reviewed internally and with city partners, it must be approved by the project manager and then uploaded to the POETS webpage. At the end of each project phase, the evaluation section of the plan should be filled out and submitted to the same link.

Prior to implementation, the project lead should provide a summary of the project and the Public Outreach and Engagement Plan to the SFMTA's Media Relations Manager and should consider whether to reach out to elected officials (District Supervisors' Aides, State delegation offices).

Plan Evaluation

The Public Outreach and Engagement Plan should be viewed as a living document. Adaptation to changing or unforeseen circumstances is a basic principle of good public engagement. The implementation of the Public Outreach and Engagement Plan should be carefully documented, with records kept on who was contacted and who participated in any meetings held. Ideally, any meeting other than a public hearing should include a feedback form from participants. The Appendix has an example of a meeting evaluation survey. At a minimum, the project outreach and engagement lead should submit a brief report at the end of each phase of the project. The plan should be reviewed and updated every six months if the project phase lasts longer than this.

Review of the Public Outreach and Engagement Plan should include answers to the following questions outlined in the Public Outreach and Engagement Plan Template:

- Was the Public Outreach and Engagement Plan implemented as planned?
- If there were changes in practice from the original plan, please explain.
- How did the plan perform on its identified goals and objectives?
- What were the key lessons learned during implementation?

- What changes would you recommend to the plan going forward?
- How did you document public input and take it into account?

Report Back to Stakeholders

After evaluating the Public Outreach and Engagement Plan, the project team should also report back to stakeholders (including partners and decision makers) at the end of each project phase. What was the purpose of outreach and engagement at this phase of the project? Who was contacted and/or engaged in the public process? What feedback did the public provide? If applicable, how did the project team take public input into account? How was it conveyed to decision makers and how did it affect the project?

The project brief created at the beginning of the Public Outreach and Engagement Plan, along with the evaluation conducted at the end of the plan, provides the information needed to complete this report back to the community at the end of each project phase. All stakeholders engaged in the process should receive this summary report, which completes the "feedback loop" described in the Public Outreach and Engagement Requirements.

Tips for Developing a Public Outreach and Engagement Plan

The SFMTA established our Public Outreach and Engagement Requirements to ensure that project teams are thoughtful in their approach to working with the communities we serve. This section offers general guidance to help you think about your Public Outreach and Engagement Plan. These tips do not correspond directly to the planning steps outlined in the Template. Instead, they emphasize that the development of your plan is not a mechanical process, but is instead an iterative and reflective effort.

Tip 1: Determine the Kind of Plan the Project Requires

The SFMTA's Public Outreach and Engagement Requirements mandate that every SFMTA project must have a Public Outreach and Engagement Plan. For the purpose of this requirement, a "project" is defined as, "A one-time effort to construct, acquire, replace, improve, expand, or rehabilitate the transportation system in the City and County of San Francisco." The assumption is that "one-time" includes projects that occur in multiple phases. In cases where the distinction between a "project" and "operations" is not clear, the key question is whether the agency's action impacts the public. If there are community impacts from an action, then the agency should plan for some level of public outreach and/or engagement.

If a project needs a plan, the first question to address is whether the project team needs to create a new, customized Public Outreach and Engagement Plan, or whether this is a smaller, routine project that can use a template developed within each Division. POETS refers to the latter as a **Programmatic Public Outreach and Engagement Plan**. The kinds of projects that are appropriate for Programmatic Plans are determined by each Division, and each Division is responsible for developing a Programmatic Plan for each category of projects. Examples might include stop signs or signal adjustments. Every small project must still consider community impacts, but the Programmatic Plan can be used as a template for each project that falls within the program category. The Programmatic Plan should be on file with POETS, and if so,

individual projects in the program category do not need to file separate plans (e.g., there's one Programmatic Plan on file for stop sign changes, so it's not necessary to file a separate plan for every stop sign change).

In addition to determining the kind of plan your project requires, it is essential to determine WHO needs to be involved in the development of the plan. Planning for outreach and engagement is not a solitary exercise in the office, but instead should involve collaboration among a team of staff members (and any consulting members of the team), informed by conversations with SFMTA colleagues, key community stakeholders, partner agencies, and decision makers. Given all the information and judgements that are necessary to create a Public Outreach and Engagement Plan, one of the first steps in planning is to identify who should be part of the process.

Tip 2: Scale the Plan to Fit the Project

The Public Outreach and Engagement Plan should be appropriate to the scale of the project. Plans for large projects will be detailed and complex, while those for smaller, simpler projects can be more standardized, as described above. The templates are designed to be helpful for all projects regardless of their size, and they are intended to be flexible. If the Project Needs Assessment determines that project impacts are minimal or that there is no opportunity for public influence, then the purpose of the plan might only be to inform stakeholders. On the other hand, even the simplest project might offer some opportunity for public influence.

Tip 3: Begin Outreach and Engagement as Early as Necessary

Planning for outreach and engagement should always begin as early as possible, ideally at the conceptual or pre-planning phase of a project. This does not necessarily mean that public outreach should be the first step in project implementation, only that an early Project Needs Assessment should identify WHEN is the best time to begin outreach and engagement with the public. In general, opportunities for the public to provide input on a project are greater during the early stages of a project (versus during post-legislation or construction). However, it can be counterproductive to reach out to the public too early, before relevant questions are addressed in the Project Needs Assessment (scope of the project, decision space, etc.). You get one chance to make a first impression, so it is critical to be prepared before going to the community. The point is to begin planning for public outreach and engagement at the outset of the project, and to include early outreach to key stakeholders in the plan whenever appropriate.

From the stakeholder's standpoint, "early" generally means before key decisions have been made, and in time for the public to have meaningful input on the project to the extent possible.

Realistic planning for outreach and engagement also includes early consideration of funding. As a practical matter, the Project Needs Assessment must be done soon enough to estimate the budget for outreach and engagement before the plan is fully developed. The POETS team can help with budget estimates.

Tip 4: Coordinate with Other SFMTA Projects and City Partners

The Project Needs Assessment identifies stakeholders, including those who will work on the project within the SFMTA and the city of San Francisco. When planning for public outreach and engagement for your project, it is important to know which other teams within the SFMTA might be working in the same geographic area. Project teams working in the same community should connect with one another as early as possible to share information, formulate communications strategies, and coordinate activities in a way that facilitates community understanding and input opportunities for intersecting projects.

> "Nobody cares if it's MTA or PUC or DPW. To us, it's the city."
>
> - Stakeholder Feedback

It is also essential to think forward about all phases of the project during initial planning. It is common for a project to be handled by different SFMTA divisions at different phases, or for a project to be handed off by the SFMTA to another agency (e.g., Public Works, Public Utilities Commission) at some phase. In either case, it is essential to coordinate with those agency and city partners to maintain a consistent standard of outreach and engagement, even if the SFMTA is not the lead during a particular phase of the project. From the community point of view, it doesn't matter which agency is working on a particular phase of a project. If it was seen as an SFMTA project from the beginning, then the SFMTA will be held responsible for how the project is carried out.

Tip 5: Comply with Language Access Requirements

As a city department that receives federal funding, the SFMTA must follow both local rules (San Francisco's Language Access Ordinance) and federal rules (Title VI of the Civil Rights Act of 1964 and supporting guidance) regarding accessibility to our programs and services to ensure that all customers, regardless of their ability to read, speak, write and understand English ("limited-English proficient" or "LEP"), are informed and able to participate in our agency's decision-making processes. The SFMTA's 2016 Language Assistance Plan (LAP) details the agency's policies about providing both written (translations) and verbal (via interpreters or bilingual employees) language assistance for our limited-English proficient customers and other stakeholders.

The Language Assistance Plan includes maps detailing concentrations of limited-English proficient communities by language, which can be used as a resource when determining the language needs of those who are affected by the project. In general, and at a minimum, most public information pieces should be translated into Chinese, Spanish and Filipino (Tagalog), and all public communications and meeting notices must include the 311 "Free Language Assistance" tagline (included in the Public Outreach and Engagement Plan Guide). Public meeting and hearing notices and agendas, including those posted at SFMTA.com, must include the four-language 48 hours' notice and a staff member's phone number to request language assistance; LanguageLine telephonic interpretation services can be used to process requests from limited-English proficient customers via phone. The Appendix includes a LanguageLine reference sheet, all language assistance taglines, and tips for providing language assistance. Depending on content, transit related public information pieces might require additional translation support.

The agency provides resources and training to assist with language assistance. Specific questions and requests for individual consultation or staff training should be directed to SFMTA Regulatory Affairs Manager Kathleen Sakelaris at Kathleen.Sakelaris@sfmta.com or 415.701.4339.

Tip 6: Make Outreach and Engagement Accessible and Equitable

All activities outlined in the Public Outreach and Engagement Plan must be implemented in a way that is inclusive and equitable. Activities should include methods for soliciting feedback that meet communities on their own terms, and that are accessible to youth, seniors, people with disabilities, and underrepresented community members, regardless of ability. The goal of the SFMTA is to inform anyone affected by our projects about their benefits and impacts, and to include anyone in the public process who has an interest in participating. The purpose of making communications and meetings accessible is not to "check a box," but to ensure that opportunities for public participation are open to all.

All communication materials should be provided in accessible formats. As noted above, the Appendix provides guidance on making meetings accessible. For assistance on making your materials and meetings accessible, contact Annette.Williams@sfmta.com or 415.701.4444.

The Muni Service Equity Strategy takes a neighborhood-based approach to address disparities on transit routes that are most critical to people from low-income households and people of color. As of 2018, there are eight neighborhoods covered by the Equity Strategy: Bayview, Chinatown, Mission, Tenderloin/SOMA, Oceanview, Outer Mission/Excelsior, Visitacion Valley, and Western Addition. Project teams working in any of the neighborhoods named in the Equity Strategy should review the documents at the link above and think carefully about how to apply the strategy to their own projects.

Regardless of whether your project falls within these eight neighborhoods, your Public Outreach and Engagement Plan should have a strategy to include those community members who have historically been underrepresented in the planning and decision-making process. While it may be more difficult and require more resources to reach and engage members of these communities, it is essential to make a deliberate effort to do so. The agency offers resources and support to help you plan for inclusive, equitable and accessible outreach and engagement.

"Public Participation" refers to the role of community members in planning and decision-making processes. It involves a two-way relationship in which the agency consults the public.

"Outreach" refers to agency efforts to inform stakeholders about the project and opportunities to participate in the public process.

"Engagement" refers to the agency's strategy to encourage public participation and consider public input.

Tip 7: Be Thoughtful about Stakeholder Notification

The goal of outreach and engagement is to be inclusive and equitable. Consider the full range of stakeholders who might be impacted by, or interested in, the project. As a general rule, it is advisable to expand rather than limit the geographic scope of project notification and updates, and to consider non-geographically defined communities that might also have an interest in the project. In cases where notification is legally required within a specified distance, consider doing outreach beyond the minimum legal requirement if indicated by the Project Needs Assessment.

One of the most consistent messages we have heard from community members is that notification should not be limited to the immediate neighborhood in which a project is taking place. Residents and other stakeholders in surrounding neighborhoods can be affected in sometimes unanticipated ways, so it is always advisable to err on the side of doing wider notification and outreach.

Tip 8: Plan for Outreach during Detailed Design and Construction

It is critical to maintain ongoing communication across all phases of the project, including those periods when there are no public meetings or legally required notices. Most large projects face a period between legislation and construction when the project has been approved but construction has not yet begun. Often, this phase can take years and can result in the community not knowing or understanding that the project has been even been approved, let alone that it is going to be implemented after a period of inactivity. In such cases, when construction begins, community members can be caught unaware. The approval process may be a distant memory for those who were involved, and newer residents may feel alarmed that they did not have an opportunity to participate during the early project phases.

For this reason, the Public Outreach and Engagement Plan must include a strategy to keep the public informed during these "quiet" or "inactive" periods. Examples of plans specifically tailored to the detailed design phase of a project can be found in the Appendix.

Tip 9: Consider Opportunities to Expand Engagement

There is always an obligation to inform the public about a given project. But despite the temptation to think our work ends here, it is rare that our only obligation is to inform through one-way communication. In almost every case, there is also an opportunity to engage stakeholders more deeply on some aspect of the project and to consider how public input might affect the project. Even during construction, there might be choices about sequencing, scheduling or mitigation that stakeholders can influence. While the minimum goal is always to inform the public about a project, good practice requires thinking carefully about how the "decision space" for public influence can be defined and potentially expanded at each phase of the project's delivery. The next section on the "Spectrum of Public Participation" provides a framework for thinking about decision space.

Tip 10: Update the Plan between Project Phases

The Public Outreach and Engagement Plan should lay out a strategy for the life of the project, with the understanding that the plan will be reviewed and updated at the end of each phase based on lessons learned and changing conditions. As a general rule, it is advisable to update the Public Outreach and Engagement Plan approximately every six months, even if a project phase lasts longer.

The Public Outreach and Engagement Requirements call for documentation of the how the Public Outreach and Engagement Plan was implemented. The templates for creating the Public Outreach and Engagement Plan provide space to record whether the plan was implemented as expected during a particular phase, the lessons learned, and the recommended revisions to the plan going forward.

The Spectrum of Public Participation

A key step in developing the Public Outreach and Engagement Plan is identifying the purpose of public participation at each phase of the project. Is the purpose simply to inform stakeholders, or is it also to ask for public feedback that might shape the project? Public participation practitioners refer to this as the project's **Decision Space.** To what extent can the public influence the project? What has already been decided, and what is on the table for consideration? The SFMTA makes a commitment about how public participation can influence each of our projects. Defining the "decision space" gives the community clear expectations about the purpose of public participation and helps planners understand how public input that can potentially influence the project.

The SFMTA has worked closely with the International Association of Public Participation (IAP2), whose **Spectrum of Public Participation** is a useful framework for helping to think about the decision space for a project. The Spectrum defines the project sponsor's commitment to public participation during each phase of project delivery. Once the goal of public participation has been defined, the Spectrum helps the project team choose the outreach and engagement methods that are appropriate for the project. The agency can reach out to stakeholders just to inform them about a project, or also to engage them in higher levels of participation along the Spectrum. Any level of public participation beyond "inform" requires some level of "engagement" by the agency in addition to communications "outreach."

The figure below defines four levels of public participation on the IAP2 Spectrum and suggests methods that correspond to each level. It is important to note that the correspondence between the level of participation and the methods used is suggestive rather than definitive. Different methods can be used for different purposes. For example, while we have heard from our stakeholders that "open houses" are forums for staff to speak, and "town halls" are opportunities for the public to speak, it is certainly true that staff can listen and take valuable feedback at open houses. Similarly, a walking tour or an ambassador can be methods to inform and/or involve the community in planning for a project.

THE SPECTRUM OF PUBLIC PARTICIPATION

The following levels of participation describe different roles of the public in the planning and decision-making process, and the commitment made by the agency at each level. The agency's outreach and engagement strategy should correspond to the goal of public participation at each project phase.

LEVEL →	INFORM	CONSULT	INVOLVE	COLLABORATE
Goal of Outreach and Engagement	We will keep you informed about the project and the decision-making process.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the project and decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the project and decision.	We will look to you for advice and innovation in formulating solutions, and we will incorporate your advice and recommendations into the project and decision to the maximum extent possible.
Example Tactics	• Open house • Newsletter • Webpage • Factsheet • Email • Social media • Mailer • Poster • Phone hotline • Ambassador	• Town hall • Public meeting • Comment form • Survey • Focus group • Interview • Tour • Pop-up booth	• Workshop • Charrette • Deliberative poll • Recurrent conversations	• Advisory committee • Participatory budgeting • Collaborative problem-solving • Small group dialogue

Adapted from the International Association for Public Participation (IAP2)

The spectrum is helpful in thinking about the purpose of public outreach and engagement at different phases of a project. Typically, there is more decision space – more opportunity for meaningful public input – at earlier stages of a project (although, as noted above, even the construction phase generally allows some room for public input, even if it is more limited than at earlier phases).

At the same time, if outreach occurs too early, the project might not be well defined, and it might not be clear to the public how to provide input. The key is to think carefully about the goals of public outreach and engagement, and to time the work appropriately. It is critical for the Public Outreach and Engagement Plan to allow enough time to inform and/or engage the public before legal milestones for public comment are reached and decisions are made.

Division 9 – Exhibit B
Public Outreach and Engagement Plan Template



Follow the steps below to create the Public Outreach and Engagement Plan for your project. See the Public Outreach and Engagement Plan Requirements for the standards that every plan must meet, and the Public Outreach and Engagement Plan Guide for more detailed support on completing each step of the plan. When you complete the plan, submit it to the POETS page on the SFMTA intranet here. **THIS STEP IS MANDATORY**. **Keep in mind that your plan is a public document and may be reviewed by SFMTA leadership and staff, city partners and members of the public.**

Project Overview

INSTRUCTIONS: Create an initial summary of the project scope, purpose, benefits and timeline. Based on an initial understanding of the project, state the anticipated decision space – the aspects of the project that the public might be able to influence and those that cannot be changed. Note that this is a very early step in project planning and should be revised based on the subsequent Project Needs Assessment. As a general rule, the Project Overview should fit on one page. Maps or other graphics can be included on the reverse side, but the Project Overview should be a single sheet when printed.

Project Description

Click here to enter text.

Project Purpose

Click here to enter text.

Project Benefits

Click here to enter text.

Project Start and End Dates

Click here to enter text.

Decision Constraints (What has already been determined or decided?)

Click here to enter text.

Project Needs Assessment

STAKEHOLDER ANALYSIS

INSTRUCTIONS: Use this table to identify stakeholders – those who will be affected by, or interested in, the project. Check the categories of stakeholders who will be affected by the project, list specific individuals and groups, and classify each as either primary, secondary or partner audiences. Note that where boxes are already selected there is a presumption that these categories of stakeholders will be included in most plans. To the extent possible, classify each group as "primary," "secondary," or "partner." Primary stakeholders are *directly* impacted by the project and must be informed regularly (e.g., residents, merchants). Secondary stakeholders are *indirectly* or *temporarily* impacted by the project (e.g., delivery drivers, commuters, tourists). Partner stakeholders are *influential and interested* within the project area and/or community-at-large (e.g., transit riders, bicycle advocates). Partners can affect awareness and support and may be enlisted to assist with outreach to the primary and secondary audiences and/or to champion the project.

Stakeholders Who Reside, Work or Travel through the Project Area

✓	**Category:** Type of Stakeholder	**Names:** Specific Individuals or Groups	**Classification:** Primary, Secondary, Partner
☒	Residential Area	Click here to enter text.	Choose an item.
☒	Business District	Click here to enter text.	Choose an item.
☒	People who drive	Click here to enter text.	Choose an item.
☒	People who walk	Click here to enter text.	Choose an item.
☒	People who ride bicycles	Click here to enter text.	Choose an item.
☒	People who ride transit	Click here to enter text.	Choose an item.
☐	Other	Click here to enter text.	Choose an item.

Community Organizations Located in the Project Area

✓	**Category:** Type of Stakeholder	**Names:** Specific Individuals or Groups	**Classification:** Primary, Secondary, Partner

☒	Neighborhood Organizations	Click here to enter text.	Choose an item.
☒	Merchant Groups	Click here to enter text.	Choose an item.
☒	Community Groups	Click here to enter text.	Choose an item.
☐	Interest/Advocacy Groups	Click here to enter text.	Choose an item.
☐	Faith-Based Groups	Click here to enter text.	Choose an item.
☐	Schools	Click here to enter text.	Choose an item.
☐	Senior Centers, Disabled Services	Click here to enter text.	Choose an item.
☐	Media (local and citywide)	Click here to enter text.	Choose an item.
☐	Other	Click here to enter text.	Choose an item.

Internal Stakeholders and Influencers

✓	**Category:** Type of Stakeholder	**Names:** Specific Individuals or Groups	**Classification:** Primary, Secondary, Partner
☒	SFMTA Internal Stakeholders (other projects that intersect with yours)	Click here to enter text.	Choose an item.
☐	SFMTA Board of Directors	Click here to enter text.	Choose an item.
☐	San Francisco Board of Supervisors	Click here to enter text.	Choose an item.

☐	Local Elected Officials (Supervisorial District)	Click here to enter text.	Choose an item.
☐	City Agencies (Public Works, Public Utilities Commission, Planning, Police, etc.)	Click here to enter text.	Choose an item.
☒	SFMTA Committees (Citizens' Advisory Council, Multimodal Accessibility Advisory Council, Paratransit Coordinating Council)	Click here to enter text.	Choose an item.
☒	Planning/Funding Organizations (County Transportation Authority, Metropolitan Transportation Commission, etc.)	Click here to enter text.	Choose an item.
☐	State and Federal Elected Officials (Delegation offices)	Click here to enter text.	Choose an item.
☐	Local schools and district	Click here to enter text.	Choose an item.

IMPACT AND INTEREST ANALYSIS

INSTRUCTIONS: Think about the ways that the project will affect residents, merchants, those who ride transit, and those who walk and ride bicycles on city streets. List the main impacts anticipated throughout all phases of the project. Note that the impacts identified in your plan are distinct from those detailed in an Environmental Impact Report or Environmental Impact Statement. While those documents might inform your analysis, the focus here is impacts on the local community.

After listing the project impacts, use the following table

Impact and Interest Analysis Calculation

to calculate a score that represents the overall level of impact and interest. There is no hard and fast rule for translating the score into a particular plan, but it is an indicator of the public's likely expectations around outreach and engagement. It is intended to serve as a starting point for discussion among the project team in developing the Public Outreach and Engagement Plan.

To find your project score, answer each question by putting a number 1 in the appropriate box in each row. The table will add the numbers in each column and then multiply the total in each column by the column weight (very low = 1, low = 2, moderate = 3, high = 4, very high = 5). The table will then calculate an average score across all questions. Write the impact and interest analysis average score below.

Impact and Interest Analysis Average Score: Click here to enter text.

Project Impacts

List the main impacts anticipated from the project (service changes, traffic changes, parking changes, construction, etc.)

Click here to enter text.

DECISION SPACE ANALYSIS

INSTRUCTIONS: Describe the decision space of the project (the scope of potential public influence on the project or decision and the opportunities for public participation). Public participation requires the SFMTA to make a commitment to stakeholders about their involvement in the project. Defining the decision space gives the public clear expectations about their role in the planning and decision-making process. Complete the section below to identify the aspects of the project that the public can potentially influence, and the kind of public input that the project team will seek. See the Guide for a discussion of how the score on the impact and interest analysis can inform the decision space analysis.

What aspects of the project can potentially be influenced by public input?

Click here to enter text.

What aspects of the project are NOT open to change based on public input, and what are the constraints that limit public influence (financial, legal, legislative, etc.)?

Click here to enter text.

Goals and Objectives

INSTRUCTIONS: List the goals and objectives of the Public Outreach and Engagement Plan for each phase of the project that the plan covers. Goals should correspond to the levels of public participation on the Spectrum of Public Participation (Inform, Consult, Involve, Collaborate). Objectives should be measurable indicators of the extent to which the goals are met. Indicate the data sources that will be used to measure progress on the objectives.

PROJECT PHASE: Click here to enter text.

GOAL / OBJECTIVE	DATA SOURCES
Goal #1 Click here to enter text.	Click here to enter text.
Objective 1.1 Click here to enter text.	Click here to enter text.
Objective 1.2 Click here to enter text.	Click here to enter text.
Goal #2 Click here to enter text.	Click here to enter text.
Objective 2.1 Click here to enter text.	Click here to enter text.
Objective 2.2 Click here to enter text.	Click here to enter text.

Key Messages

INSTRUCTIONS: List the key messages about the project for general and specific audiences. Be sure to include the purpose and benefits of the project, potential impacts, project timeline, opportunities for

public input, and key contacts. Where relevant, indicate the intended purpose of communication in relation to the goals of the Public Outreach and Engagement Plan (to inform, to recruit participants, etc.).

Messages for General Audience:

Click here to enter text.

Specific Audience Messages (Stakeholder: Click here to enter text.**)**

Click here to enter text.

Specific Audience Messages (Stakeholder: Click here to enter text.**)**

Click here to enter text.

Specific Audience Messages (Stakeholder: Click here to enter text.**)**

Click here to enter text.

Specific Audience Messages (Stakeholder: Click here to enter text.**)**

Click here to enter text.

Outreach and Engagement Techniques

INSTRUCTIONS: List the outreach and engagement techniques and tools you will use to achieve the goals and objectives you established for the project. Include multi-channel communications tactics, community meetings, and other ways you will reach out to stakeholders given your goals for each project phase. This step is about how to inform and engage the public, including details about implementation. This is also the appropriate step for planning language access needs.

Project Phase: Click here to enter text.

ONGOING (For communication and relationship-building throughout the phase)

Click here to enter text.

DISCRETE (At specific points to inform, compile feedback or convene people)

Click here to enter text.

Project Phase: Click here to enter text.

ONGOING (For communication and relationship-building throughout the phase) Click here to enter text.
DISCRETE (At specific points to inform, compile feedback or convene people) Click here to enter text.

Project Phase: Click here to enter text.

ONGOING (For communication and relationship-building throughout the phase) Click here to enter text.
DISCRETE (At specific points to inform, compile feedback or convene people) Click here to enter text.

Schedule and Responsibilities

INSTRUCTIONS: Create an action plan – a summary of the schedule and responsibilities for public outreach and engagement activities and tasks.

PUBLIC OUTREACH & ENGAGEMENT ACTION PLAN

Date	Activities/Tasks	Person(s) Responsible
Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".	Click here to enter text.	Click here to enter text.
Click down arrow to enter	Click here to enter text.	Click here to enter text.

a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.		
Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.	Click here to enter text.	Click here to enter text.
Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.	Click here to enter text.	Click here to enter text.
Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.	Click here to enter text.	Click here to enter text.

Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".	Click here to enter text.	Click here to enter text.

Budget

INSTRUCTIONS: Enter the estimated budget for public outreach and engagement for each project phase that the Public Outreach and Engagement Plan covers. Note: depending on the project, it might be necessary to complete this estimate before other steps in the planning process. If possible, however, the budget will be based on the Project Needs Assessment and a thorough understanding of the strategy for outreach and engagement. Note that the table below represents a budget summary which should be based on a more detailed estimate of budget line items for each phase. Note that budgeting for public outreach and engagement is more art than science and must be conducted on a project-by-project basis. Division Leads can provide support in developing your budget. The Appendix provides examples of line item budgets for other SFMTA projects.

PUBLIC OUTREACH & ENGAGEMENT PLAN BUDGET

Project Phase: Click here to enter text.	
Project Phase: Click here to enter text.	
Project Phase: Click here to enter text.	
Project Phase:	

Click here to enter text.	
TOTAL	$ 0.00
Enter cost for each phase; to total, click the $ sign and press F9. If you make changes to any of the costs, click the $ sign and press F9 to calculate the new total.	

Plan Review

INSTRUCTIONS: Check which of the following people and agencies need to be contacted and informed about your plan. Which SFMTA projects intersect with yours? What other agencies will you need to work with? Who needs to be kept informed within the City? Indicate in the Notes the nature of the relationship.

✓	Target:	Notes:
☒	SFMTA Public Relations Officer	Click here to enter text.
☒	Other SFMTA Projects in your Project Area	Click here to enter text.
☒	District Liaison for your Project Area	Click here to enter text.
☒	POETS Division Lead	Click here to enter text.
☐	Project Management Office	Click here to enter text.
☐	Other City Departments	Click here to enter text.
☐	Other non-City Agencies	Click here to enter text.

Plan Evaluation

INSTRUCTIONS: At the end of each phase of the project (or every six months, whichever comes first), answer the following questions and submit an updated version of your plan (one that includes the completed section below and any revisions to other parts of the plan for future phases of the project) to the POETS page on the SFMTA intranet here. If the Plan Evaluation along with any revisions to the Public Outreach and Engagement Plan.

Project Phase: Click here to enter text.

Was the plan implemented as intended? How did it change? Click here to enter text.
To what extent did the plan achieve its goals and objectives? Click here to enter text.
What were the main lessons learned during implementation? Click here to enter text.
How would you modify the plan as the project moves to the next phase? Click here to enter text.
How did you document public input and how it was considered (if applicable)? Click here to enter text.

Report Back to Stakeholders

INSTRUCTIONS: At the end of each phase of the project, complete the "feedback loop" with stakeholders who were contacted or engaged. Use the Template to provide the key information that will be provided to stakeholders, and to document when, how and to whom it was provided.

Project Phase: Click here to enter text.

What aspects of the project were open to public input? Click here to enter text.

What were the techniques used to receive public input? (meetings, website, surveys, etc.)

Click here to enter text.

What input did the project team receive from the public?

Click here to enter text.

How was public input conveyed to decision-makers (if applicable)?

Click here to enter text.

How did public input influence the project?

Click here to enter text.

What are next steps for the project and any opportunities for further public input?

Click here to enter text.

List the stakeholders who received a follow-up report (written or verbal):

Stakeholder	Method	Date
Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".
Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".

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Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".
Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".
Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose "Remove Content Control".

Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.
Click here to enter text.	Click here to enter text.	Click down arrow to enter a date; to enter approx. date or range, click inside cell, right click & choose “Remove Content Control”.

Division 10: SFPW Div 01 General Requirements for Construction

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SECTION 00 73 20 - EXISTING UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes special requirements for existing utilities and underground facilities owned or controlled by any person or entity, private or governmental, referred to herein as “Utility Owners,” which may be encountered by NPE while performing the Work.

B. Utilities in public streets that are within the jurisdiction of the Department of Public Works shall be governed by the applicable provisions of the San Francisco Public Works Code, Sections 906, 907, 908, 909, and 910. The Utility Crossings Specifications (see Section 00 73 21) are based on agreements with non-governmental agencies for removal, support and relocation of privately-owned utility facilities.

1.2 GOVERNMENTAL UTILITIES IN THE CITY OF SAN FRANCISCO

A. NPE shall satisfactorily support, work around, and protect, as approved by the City as Regulator, all Utilities, whether shown on drawings or not, which exist within any excavation and which are owned or controlled, and maintained, by a City department or Governmental Entity, including, but not limited to, traffic control, lighting, police communication and fire alarm systems, and all conduits, wiring and related appurtenances for such systems; sewers and sewer structures; water enterprise Utilities; pipes and Utilities of the Auxiliary Water Supply System for Fire Protection; the Municipal Railway and Hetch Hetchy Water and Power overhead lines and power feeder systems serving the Municipal Railway; and other Hetch Hetchy Water and Power Utilities (together, “**Governmental Utility(ies)**”).

1. If Municipal Railway facilities, Hetch Hetchy Water and Power facilities serving the Municipal Railway, and other Hetch Hetchy Water and Power facilities are encountered, NPE shall support such Utilities in a manner satisfactory to the City as Regulator.

2. If Auxiliary Water Supply for Fire Protection Utilities are encountered, NPE shall support such Utilities by a minimum of one cable with turnbuckle, a strongback, and a beam spanning the trench; however, where a joint falls within the trench area, a cable with turnbuckle shall be placed on each side of the joint. All such support work shall be subject to the approval of the City as Regulator before commencement thereof. After supports are removed and the pipe is sufficiently supported by partial backfill, but with the joints exposed, the pipe shall be subjected to a hydrostatic field test of 350 psi pressure in accordance with section 908.22 of the DPW Standard Specifications (refer to Division 1 for reference standards) before final backfill is placed. If a joint is visibly wet, NPE shall repair the joint in accordance with section 910 of the DPW Standard Specifications.

3. If vitrified clay pipe side sewers or culverts are encountered, NPE may elect, in lieu of supporting such side sewers and culverts, to cut and restore those portions of the side sewers and culverts which obstruct the prosecution of the Work, provided that NPE complies with the provision of section 301 of the DPW Standard Specifications regarding the handling and disposal of seepage, storm water and sewage.

4. Water enterprise Utilities, if encountered, shall be supported by PCC as follows:

    a. Push-on joint pipes: Pipes shall be supported by a minimum of one cable with turnbuckle, a pipe clamp and a beam spanning the trench; however, where a joint falls within a trench area, a cable with turnbuckle and pipe clamp shall be placed on each side of the joint.

b. Copper tubing and plastic pipes (service pipes 2 inches or smaller in diameter): If the trench is less than 8-foot wide, no support is required. For trenches wider than 8 feet, one support is required for every additional 8 feet or part thereof.

c. Steel welded pipes: Pipes shall be supported in a manner satisfactory to the General Manager of the Public Utilities Commission of the City and County of San Francisco.

d. NPE shall submit support designs for approval and start work only with approved support designs.

5. PCC shall perform the adjustment of manhole castings and other castings of Government Utilities, and the paving adjacent thereto, in accordance with the requirements of Section 217 of the DPW Standard Specifications.

B. Supporting, working around, and protecting existing Governmental Utilities shall be considered part of the Work.

1.3 NON-GOVERNMENTAL UTILITIES IN THE CITY OF SAN FRANCISCO

A. The procedure to be followed with respect to non-governmental Utilities owned or controlled by any person, company, firm or corporation, is covered by sections 906, 907, 908, 909, and 910 of the San Francisco Public Works Code (part II, chapter X, of the Municipal Code).

B. Non-Profit Entity shall be aware that agreements have been executed between various Utility Owners, and the City, enabling such Utility Owners to have included in City contracts the work of supporting, working around, and protecting their Utilities. Such work will be paid for by the various Utility Owners directly to NPE in conformance with the provisions of the Utility Crossing Specifications (Section 00 73 21). Requirements for performance of this work are also contained in the Utility Crossing Specifications.

1.4 ABANDONED UTILITIES

A. These provisions do not apply to abandoned Utilities. Any increase in the cost of NPE operations occasioned by the presence and/or removal of abandoned Utilities shall be at the sole expense of NPE and no additional payment will be made by the former Utility Operators or by the City.

1.5 USE OF PAVEMENT BREAKER ADJACENT TO UTILITY FACILITIES LIMITED

A. In accordance with the requirements of section 373 of the Public Works Code, NPE may use pavement breakers or other labor-saving devices; however, the use of any machine or device that breaks pavement by blows struck by a falling or driven hammer or weight is prohibited within a horizontal distance of 6 feet from any gas, sewer, water or Auxiliary Water Supply System pipe, communications duct or any other utility facility.

1. Such prohibition, however, shall not be construed as barring the use of hand tools or manually operated air tools such as jackhammers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 00 73 21 - UTILITY CROSSINGS

(Effective January 1, 2023)

SECTION U1. SUPPORT, WORK AROUND, AND PROTECT EXISTING UTILITY COMPANY FACILITIES-GENERAL SPECIFICATIONS

I. General

NPE shall support, work around, and protect all existing Utilities, including the Utilities of the following Utility Owners, as applicable, where Utilties exist within excavations and interfere with the prosecution of the Work because of their presence:

Pacific Gas and Electric Company (PG&E), Pacific Bell Telephone Company D/B/A AT&T California (AT&T), Comcast Corp. (Comcast), Astound Broadband, LLC dba Wave (Astound), Webpass Telecommunications LLC (Webpass), Zayo Group, LLC (Zayo), Century Link Communications LLC f/k/a Qwest Communications Company LLC (Century), Sonic Telecom, LLC (Sonic), GTE Mobilnet d/b/a Verizon Wireless (Verizon), Mobilitie, LLC (Mobilitie), Crown Castle NG West LLC (Crown Castle), ExteNet Systems (California) LLC (Extenet). MCImetro Access Transmission Services Corp., PAXIO, INC., Electric Lighwave Holdings, Inc. fka Integra Telecom Holdings, Inc. (Electric Lightwave), Mpower Communications Corporation, T-Mobile West LLC (T-Mobile), Level 3 Communications LLC (Level 3), TW Telecom of California l.p, formerly known as Time Warner Telecom of California, L.P (TW Telecom).

This Section covers supporting documentation required from NPE and direct payment by the Utility Owner to NPE, based upon existing agreements between the Utility Owners and the City, for all costs incurred as a result of the work performed by the NPE to support, work around and/or protect the existing Utility Crossings within the Project Site.

Non-Profit Entity shall identify in the relevant Design Documents all known Utilities and where Utility Crossing work is anticipated. Utilities which the Utility Owner intends to adjust or abandon thus eliminating the need for NPE to support, work around, or protect will also be identified.

Within 45 calendar days of NTP 1, the Utility Owners listed above, as applicable, will execute a payment agreement with the NPE and will pay said NPE directly for the work of supporting, working around, and protecting such Utilities, according to the Fixed Price Schedule, set forth in this Section 00 73 21. The Utility Owner is not required to accept or pay invoices submitted to the Utility Owner by a Subcontractor. NPE will not be allowed to mark up the invoices for the support and work around costs from any Subcontractor.

NPE shall perform the Work at Utility Crossings of other non-governmental Utilities not owned by the Utility Owners identified in this Section 00 73 21.

Any Utilities owned by Utility Owner that require relocation to avoid physical conflict with the facilities to be constructed under this Agreement will be relocated by the appropriate Utility Owner.

Utility Crossing work that is subject to the Fixed Price Schedule is not a Utility Adjustment.

Definitions

Utility Crossing: means any Utility, including a Utility main, duct structure, or service, located within an excavation area of the Work, where the Utility will remain in place and will not be relocated, abandoned in place, or removed.

Duct Structure: means one or more ducts, conduits or pipes, of any size, or a combination of such ducts, conduits or pipes, which are grouped together but which may or may not be banded, encased in concrete, or otherwise incorporated into a solid unit.

Nested Utilities: means facilities six- inches (6") or less in outside diameter or width and are less than 3 feet clear distance from each other regardless of ownership. In the case of nested facilities, each crossing shall be paid for according to the Fixed Price Schedule reduced by 33-1/3%.

Abandoned Utilities: means those Utilities identified by the Utility Owner as Utilities that the Utility Owner has stopped using with the intent of never using again.

Inactive/Deactivated Utilities: means those Utilities that Utility Owner identifies as Utilities that Utility Owner has temporarily stopped using with the possible intent of future use.

Fixed Price Schedule

Utility Crossings where the length of the Utility is not more than 3 times the width of the excavation for excavation widths less than 18 feet, shall be priced pursuant to the "Fixed Price Schedules" set forth in this Section 00 73 21, and submitted to the Utility Owner for payment.

Excavation width will be the outside diameter or width of the City-owned structure plus 3 feet. The length of a Utility Crossing is the centerline distance, in feet, of the portion of the Utility within the excavation area.

Utility Co. Facility Support, Etc., Work Located in Contract but Utility Contract Drawings Omitted from Contract

In the event that information from the Utility Owners listed in this Section 00 73 21, as applicable, are not included in the Agreement but the cost estimate and general location of the support, work around and protect work are known and included in the Contract Documents, all such work performed will be paid for by the Utility Owner according to the Fixed Price Schedule hereinafter set forth.

Utility Co. Facility Support, Etc., Work Overlooked, Unexpected, and Not Shown on Utility Contract Drawings, but Ownership Known

Support, work around and protect work for those Utility Crossings overlooked, unexpected, and not shown on information provided by Utility Owners will be paid for by the Utility Owner according to the Fixed Price Schedule set forth in this Section 00 73 21 plus an additional fifteen (15) percent surcharge for Non-Profit Entity's profit and overhead.

Negotiated Payment

Notwithstanding the Fixed Price Schedules hereninafter set forth, the Utility Company and the NPE shall directly negotiate the costs for:

- "Parallel" Utility Crossings,
- Utility Crossings with lengths more than three times the width of the excavation, and/or
- Where the computed cost of any crossing exceeds **$12,748**.

If a public or private Utility is located longitudinally and directly on top of the Project trench or multiple Utilities crossing the Project trench are located too close to each other leaving no space in between for the NPE to excavate and shore the trench, and there is a need to change the construction method to install Project facilities, then the increased cost shall be shared by Utility Owners and Non-Profit Entity based on the number, size, and ownership of each Utility.

Abandoned or Inactive/Deactivated Facilities

<u>Abandoned Utilities</u>

Abandoned Utilities are those Utilities identified by the Utility Company Owner identifies abandoned facilities as facilities Utilities that they have Utility Owner has stopped using with the intent of never using again. Utility Owner may, but is not required to, specify abandoned Utilities materials it furnishes to support Utility work, including Utility Crossings. If NPE encounters unidentified Utilities during construction, NPE shall notify the Utility Owner in

accordance with paragraph “Unexpected or Unidentified Utilities”. The Utility Owner inspector shall visit the site within 24 hours or the time required in Utility contracts with the City to confirm that the Utility is abandoned. If the Utility Owner fails to confirm that the Utility is abandoned, the NPE will receive full payment per Fixed Price Schedule for support, work around and protect work performed.

Inactive/Deactivated Utilities

Utility Owner will specify materials it furnishes to NPE to support Work related to Utilities and Utility Crossing any inactive Utilities. The NPE will perform support, work around, and protect around inactive Utilities unless otherwise instructed by the Utility Owner.

Removal of Abandoned Utilities or Inactive Utilities

If necessary to construct the Project, the removal of abandoned or inactive Utilities that the Utility Owner determines it intends to abandon will be at the NPE’s sole expense, except for removal of duct banks, and conduits or pipes larger than twelve-inch (12”) in outside diameter owned by the Utility Owners. Utility Owner and the NPE will negotiate the cost for removal of such Utility Owner duct banks, and conduits or pipes larger than twelve-inch (12”) in diameter.

Payment Only for Work Performed by the NPE

The Utility Owner will not pay the NPE unless actual work to support, work around and/or protect the Utility Owner’s Utilities was performed. No payment shall be due to the NPE if the Utility Owner crews respond and are supporting, working around, and/or protecting their Utilities, such as in an emergency, or if the NPE does not actually perform any work or undertake any action to support, work around or protect the Utility Owner’s Utilities.

II. Contract Activities

Utility Crossing Measurement

The NPE shall measure the outside diameter or width of Utility Crossings to the nearest inch (outside diameter **excluding** any fittings, bells, or gate valves) and length of the Utility Crossings to the nearest foot to determine the cost of each Utility Crossing according to the Fixed Price Schedule hereinafter set forth.

Utility Company’s Right of Confirmation

The Utility Owner shall have the right to confirm measurements with the NPE but all disagreements shall be resolved without delay to the Project Schedule.

Variations and Cost Adjustments

The NPE shall notify the Utility Owner immediately of any variation of Utility Crossings from the materials furnished by the Utility to support Work related to Utility Crossings and estimate the required cost adjustment for such variations. Cost adjustments shall be settled within no more than two Days.

Verification and the NPE Itemization

NPE shall keep an itemized record of the Utility Crossing work done, noting any variations from the materials furnished by Utility Owners to support Work related to Utility Crossings and estimates. The itemized record shall be maintained and copies submitted monthly to the Utility Owner and the City for information.

Supporting Documentation for City Projects other than Spot Sewer Repair Contracts

The NPE shall, at a minimum, submit the following supporting documentation with each invoice submitted to the Utility Owner for payment:

- Utility Crossing support and work around summary and Design Documents for support and work around invoice for utilities” identifying the Utility Owner reimbursed work by type of Utility, and shall include following:

- Identification of all Utility Crossings by alpha-numerical numbering system (e.g., E1, E2, G1, G2);
- Location and size of all Utility Crossings
- Length of all Utility Crossings

- Photos of following Utility Crossings:
  - Utility Crossings where the size of the Utility varies from that shown on Design Documents or estimates; any change of measurement requires one photo per block per size variation.
  - Utility Crossings not shown on Utility Owner's Utility Contract Drawings or estimates.
  - Parallel Utility Crossings showing measurements and potential facilities support
  - Utility Crossings six-fee (6') or longer unless:
    - Shown on Utility-furnished materials and/or estimates and no variance.
    - Utility is a lateral that is crossing the excavations having 6 feet or greater trench width and crossing length does not exceed the trench width.

Supporting Documentation for Spot Sewer Repair Contracts

The NPE shall, submit the following documentation with each invoice submitted to the Utility Owner for payment for spot sewer repair contracts:

- A summary of Utility Crossing support and work around.
- Support and work around invoice for Utility Crossings identifying company reimbursed work by block, type of Utility and shall include following:
  - Identification of all Utility Crossings by alpha-numerical numbering system (e.g., E1, E2, G1, G2);
  - Location and size of all Utility Crossings
  - Length of all Utility Crossings.
  - Invoice and as-built templates shall be utilized and all information filled out in its entirety (e.g. NPE representative's name and signature, date, etc.)
- Photos of following Utility Crossings:
  - All Duct Bank Structures and related measurements
  - All Utility Crossings six-feet (6') or greater in length
  - All unmarked active Utility Crossings that are supported
  - Each utility that varies in size and/or location from USA street marking(s).
- Underground service alert ticket number

Photos

All photos must include:

- Label with Utility Crossing reference number
- Name of street or intersection
- Above-ground picture that includes a landmark (street sign, or house) that helps identify location of the crossing.

Unexpected or Unidentified Utilities

If, during the course of the work, an unexpected or unidentified interference is discovered, the NPE shall immediately call this fact to the attention of all Utility Owners, including appropriate City Departments. The City Departments and Utility Owner shall have 48 hours from receipt of such notification including at least 8 working hours to determine ownership and provide direction to the NPE for disposition of the Utility which are not in direct conflict with the Work and can be supported, worked around and protected in the trench. However, if the unidentified facility is in direct physical conflict with the City Project work and the NPE cannot proceed further without resolution, the Utility Owner and City Departments will visit the site as soon as possible within the 24 hours from receipt of such notification to determine ownership and provide direction to the NPE. The time allowance shall include at least 8 working hours. If the ownership of the unidentified Utility is unknown, the NPE shall call Underground Service Alert (USA) requesting Utility Companies to visit the site to identify the ownership. If no determination can be made after the aforementioned procedure is followed, the NPE will follow the direction of the City or authorized designee to either remove the facility as abandoned or support and work around the Utility. Disposition shall be in accordance with the applicable requirements of Section 00 73 20, Article 1.3, if such Utilities are owned by Utility Owners other than the Utility Owners listed above. If ownership is by one or more of the Utility Owners listed above, disposition shall be as hereinbefore set forth under the heading, "Utility Owner Utility Support, Etc., Work Overlooked, Unexpected, and Not Shown on Utility Contract Drawings, But Ownership Known." If the City directs the NPE to support and work around a Utility whose ownership is unknown and cannot be confirmed that it is abandoned, support and work around work of such Utility will be paid for by the City according to the Fixed Price Schedule hereinafter set forth plus an additional fifteen (15) percent surcharge for NPE's profit and overhead.

Progress Payments

Progress payment for completed Utility Crossing work shall be made by the Utility Owner within ninety (90) days of receipt of an invoice from the NPE submitted along with the supporting documentation listed above.

III. METHOD OF DETERMINING UTILITY CROSSING COSTS

Fixed Price Schedule

The cost of support, work around and protection of Utility mains, duct structures and services shall be based on the outside diameter or width of said Utilities and the length of the Utility Crossing.

In the following schedules the maximum outside diameter shall mean outside diameter of pipe, conduit, service, duct or main **excluding** any fittings, bells, or gate valves, and width shall mean the distance measured horizontally across the duct structure.

Cost of Utility Crossing = Fixed Cost + Support Cost Group I: Length of Crossing less than Six (6) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing
4 inches or less	**$717**	0
Over 4 inches to 20 inches	**$717 + $119** per inch over 4 inches	0
Over 20 inches	**$2,628 + $199** per inch over 20 inches	0

Group II: Length of Crossing Six (6) Feet to Twelve (12) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing Over Six Feet
4 inches or less	**$916**	**$119**
Over 4 inches to 20 inches	**$916 + $127** per inch over 4 inches	**$119**
Over 20 inches	**$2,955 + $215** per inch over 20 inches	**$119**

Group III: Length of Crossing Greater than Twelve (12) Feet

Maximum Outside Diameter Of Main And Service Or Width Of Duct Structure	Fixed Cost	Support Cost Per Foot of Length of Crossing Over Twelve Feet
4 inches or less	**$1,633**	**$159**
Over 4 inches to 20 inches	**$1,633 + $143** per inch over 4 inches	**$159**
Over 20 inches	**$3,926 + $239** per inch over 20 inches	**$199**

SECTION U2. SUPPORT, WORK AROUND, AND PROTECT EXISTING PACIFIC GAS AND ELECTRIC COMPANY (PG&E) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

The requirements for supporting, working around, and protecting existing Pacific Gas and Electric Company (PG&E) underground electric, gas and steam Utilities are as follows:

For pipe and conduit in sizes up to and including 6 inches inside diameter, spans of less than 6 feet shall be considered self-supporting unless otherwise directed by the City or by the PG&E inspector through the City. Spans of 6 feet and more, but not to exceed 12 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support joints, valves and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

For pipe and conduit in sizes larger than 6 inches inside diameter, spans shall be supported by beams with cables and turnbuckles located at intervals not to exceed ten times the diameter of the pipe measured in inches, unless otherwise directed by the City or the PG&E inspector through the City. Cable and turnbuckles shall be located to support joints, valves, and other fittings. Cast iron joints and valves, where encountered, shall be supported on both sides.

Concrete-encased duct lines and/or concrete-encased steam lines shall not be considered as

self-supporting, but may be so designated by the City or PG&E inspector through the City, upon a visual examination of the concrete envelope.

Beams, cables and turnbuckles for supporting steel pipe and/or conduit shall be adequately sized to limit the deflection so as not to exceed length of span in feet divided by 360.

Length of Span in Feet

Beams, cables and turnbuckles used for supporting cast iron pipe shall be adequately sized to ensure that no deflection will occur.

Beams, cables and turnbuckles used for supporting concrete encased duct lines and/or concrete encased steam lines shall be adequately sized and spaced to ensure that no deflection will occur.

For multi-way conduits, spacers shall be placed to maintain conduit separation at point of support. 2-inch x 4-inch wood softeners shall be used with all cable slings to prevent damage to pipe, coating, wrapping or concrete encasement. However, slings supporting unreinforced concrete encased pipe must also incorporate strongbacks to prevent cracking of concrete.

NPE shall exercise due care to avoid damage to pipe and pipe coatings, wrapping or concrete encasement. To help prevent damage to gas pipelines and other PG&E underground utilities, call 811 at least two (2) working days before and up to fourteen (14) days in advance of an excavation so that all crossings can be verified. Should NPE damage or displace any PG&E facility: move to a safe location, call 911, and then contact PG&E at 1-800-743-5000 (gas and electric facilities). Repairs or replacements will be made by the PG&E.

SECTION U3. SUPPORT, WORK AROUND, AND PROTECT EXISTING PACIFIC BELL TELEPHONE COMPANY D/B/A AT&T CALIFORNIA (AT&T) UNDERGROUND UTILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing AT&T underground Utilities are as follows:

Requirements for Supporting AT&T Ducts

A single duct spanning less than 6 feet shall be considered self-supporting unless otherwise directed by the City or by the AT&T inspector through the City.

A single duct spanning more than 6 feet shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional 6 feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Duct structures consisting of 2 or more single ducts not encased in concrete and spanning more than 4 feet, shall be banded with at least 2 bands and supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional set of bands, cable and turnbuckle shall be installed for each additional 4 feet or fraction thereof of span. Banding of ducts shall be done in such a manner as to not distort the normal configuration of the structure.

Duct structures consisting of 2 or more single ducts, encased in concrete and spanning more than 4 feet, shall be supported by a beam with at least one cable and turnbuckle. For spans over 8 feet, an additional cable and turnbuckle shall be installed for each additional 4 feet or fraction thereof of span.

Multiple-duct structures of vitrified clay and/or concrete shall be supported for the complete width of the trench. The support shall consist of planking or beams equal in width to the width of the structure and banded to it. This structure in turn shall be supported by a beam with at least one cable and turnbuckle placed every 4 feet or fraction thereof so as to maintain the existing position and alignment of the duct structure.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting AT&T Ducts

Single ducts shall be protected if required. This determination will be made by the City or by the AT&T inspector through the City.

Duct structures having top and bottom wood planking or encased in concrete will not require additional protection unless otherwise directed by the City or by the AT&T inspector through the City.

All other multiple duct structures, with the exception of steel pipe in good condition, shall be protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure.

Damage or Displacement of AT&T Utilities

Should NPE damage or displace any AT&T owned facility, the Cable Maintenance Department of AT&T shall be notified immediately by calling 611, press Option 1, and then Option 5. Repairs or replacements will be made by AT&T.

SECTION U4. SUPPORT, WORK AROUND, AND PROTECT EXISTING COMCAST CORP. (COMCAST) UNDERGROUND UTILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing Comcast underground Utilities are as follows:

Requirements for Supporting Comcast Corp. Ducts

A single duct spanning less than six (6) feet shall be considered self-supporting, unless otherwise directed by the Comcast engineering coordinator or the Comcast inspector, through the City.

A single duct spanning more than six (6) feet shall be supported by a beam with at least one cable and turnbuckle. For spans over twelve (12) feet, an additional cable and turnbuckle shall be installed for each additional six (6) feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Duct Structures consisting of two (2) or more single ducts spanning more than four (4) feet shall be banded with at least two (2) bands and supported by a beam with at least one (1) cable and turnbuckle. For spans over eight (8) feet an additional set of bands, cable, and turnbuckle shall be installed for each additional four (4) feet or fraction thereof of span. Banding of ducts shall be done in such a manner as to not distort the normal configuration of the structure.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting Comcast Ducts

Single ducts shall be protected if required. This determination will be made by the Comcast engineering coordinator or by the Comcast Corp. inspector, through the City.

Duct Structure having top and bottom wood planking will not require additional protection unless otherwise directed by the Comcast engineering coordinator or the Comcast Corp. inspector through the City.

All other multiple duct structures shall be protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure.

Damage or Displacement of Comcast Facilities

Should NPE damage or displace any Comcast owned facility the proper authorities shall be notified immediately by calling 1-888-824-8399. Repairs or replacements will be made by Comcast

SECTION U5. SUPPORT, WORK AROUND, AND PROTECT EXISTING MUNI TRANSIT POWER (MTP) UNDERGROUND FACILITIES - STANDARD TECHNICAL SPECIFICATIONS

General

The requirements for supporting, working around, and protecting existing Muni Transit Power (MTP) underground conduit and ducts are as follows:

Requirements for Supporting MTP Conduits and Ducts

Steel conduit spanning less than six feet shall be considered self-supporting unless otherwise directed by the City or by the MTP inspector through the City.

Steel conduit spanning six feet and more shall be supported by a beam with at least one cable and turnbuckle. For spans over 12 feet, an additional cable and turnbuckle shall be installed for each additional six feet or fraction thereof of span. Cables and turnbuckles shall be located to support duct joints.

Beams, cables and turnbuckles for supporting steel conduit shall be adequately sized to limit the deflection so as not to exceed length of span in feet divided by 360.

Spacers shall be placed between multiple conduits in a manner to maintain conduit separation at points of support.

Concrete-encased ducts spanning more than four feet shall be supported by a beam with at least one cable and turnbuckle. For spans over eight feet, an additional cable and turnbuckle shall be installed for each additional four feet or fraction thereof of span for the complete width of the excavation.

Beams, cables and turnbuckles for supporting concrete-encased duct lines shall be adequately sized and spaced to insure that no deflection will occur.

NPE shall provide adequate support and protection to prevent differential movement at the juncture of manholes and duct banks.

Duct structures consisting of dissimilar conduit materials shall be supported in the manner applicable to the most fragile portion of the structure.

Requirements for Protecting MTP Conduits and Ducts

Steel conduit shall be protected if required. This determination will be made by the City or by the MTP inspector through the City.

Duct structures having top and/or bottom wood planking or encased in concrete will not require additional protection unless otherwise directed by the City or by the MTP inspector through the City.

All other duct structures, such as unprotected tile and the like, shall be adequately protected by the placement of wood planking or sheeting no less than 1/2-inch in thickness and equal in width to the width of the structure. The top, bottom and sides shall be covered as necessary, depending on NPE's operations and the conditions of the work.

Damage or Displacement of MTP Facilities

Should NPE damage or displace any MTP-owned facility, John Orkes, Overhead Lines Superintendent of the Traction Power Group (TPG), shall be notified immediately by calling 1-415-554-9221. Repairs or replacements will be made by MTP.

Conduits to Pole Risers to be Considered as Services

For the purpose of payment, conduits that run directly from a manhole or pull box to a pole riser shall be considered to be a service and will be paid for according to the Cost of Utility Crossing Schedule above (III. METHOD OF DETERMINING UTILITY CROSSING COSTS).

END OF SECTION

SECTION 01 12 00 - SPECIAL INSTRUCTIONS

PART 1 - GENERAL

The following conditions apply to the Work / Project.

A. Non-Profit Entity shall comply with Article 37 of General Order 95 of the Public Utilities Commission State of California. CAL OSHA regulations require that any equipment that moves vertically must maintain a 10 feet radial clearance, and any other equipment must maintain a 6 feet clearance from SFMTA overhead electric wires. The Non-Profit Entity shall observe these regulations during the entire duration of the construction work. The Non-Profit Entity shall choose the appropriate construction means and methods to meet all CAL-OSHA rules and regulations while accommodating MUNI's operational and facility's requirements.

B. Relocating or isolating/re-energizing MUNI overhead wires will not be allowed for roadway related work, which includes, but is not limited to curb ramps, curbs, gutters, sidewalk, parking strips, paving, and adjustment of castings.

C. Initial Curb Ramps: The Non-Profit Entity shall complete the construction of the initial curb ramps at two curb returns and have them inspected and approved by the City as Regulator prior to proceeding with construction of the other curb ramps. No additional curb ramps shall be constructed until the City as Regulator has approved the initial curb ramps. Inspection will include workmanship, color, finishes, and to verify that the curb ramps conform to the plans and specifications. The approved initial curb ramps shall be a standard of comparison for all curb ramps work.

D. The Non-Profit Entity shall ensure that the existing fire hydrants on site are not removed or relocated prior to curb ramp layout. The existing fire hydrant and flange shall be removed prior to final curb ramp or concrete finishing.

E. The Non-Profit Entity shall ensure there is proper coordination of new fire hydrant and water meter box locations with new curb ramp construction locations, so that new fire hydrants and water meter boxes do not negatively impact the curb ramp design requirements in accordance with SFDPW Standard Plans 102,854 thru 102,864.

F. The Non-Profit Entity shall use proper equipment to prevent unnecessary damage to public and private property not otherwise part of the Project or identified as part of the Work such as no heavy equipment on the top of sidewalks.

G. The Non-Profit Entity shall use temporary hot mix asphalt concrete to provide longitudinal and/or transverse transitions with a slope of 1:18 between the newly constructed concrete base, manhole, etc. and existing pavement (whenever the difference in the grade of the pavement and the concrete base, manhole, etc. exceeds 3/4 inch) by the end of the work shift or before opening the lanes to traffic. Temporary hot mix asphalt paving shall conform to Section 211.01 of DPW Standard Specifications. Installing and removing temporary paving shall be considered incidental work.

H. Five (5) working days prior to the commencement of Construction Work, Contractor shall notify Mark Middleton of the San Francisco Public Utilities Commission at (415) 262-2144 or (415) 254-3538 to schedule removal of flow meters installed in sewer manholes, if encountered within the work scope.

1. Three days (3) after completion of sewer work, Non-Profit Entity shall contact Mark Middleton for PUC to reinstall flow meters at affected locations.

THIS APPLIES TO THE REMOVAL OF EXISTING BUS SHELTERS AND INSTALLATION OF NEW BUS SHELTERS AND CORRESPONDING ELECTRICAL CONDUITS WITH CLEAR CHANNEL.

I. The Non-Profit Entity shall coordinate all bus shelter work with SFMTA and Clear Channel. Clear Channel will coordinate the removal of existing bus shelter with Non-Profit Entity in order to minimize bus shelter down time. Non-Profit Entity shall verify the new bus shelter locations with Clear Channel on site. After demolition and removal of the existing concrete pavement, Non-Profit Entity shall allow a maximum of five (5) working days for Clear Channel to install the underground electrical conduits and pull boxes at each bus shelter location. Non-Profit Entity is to contact Clear Channel and SFMTA for the new bus shelter installation after sidewalk construction has been completed.

J. If completion of the Work will require temporary closure of the roadway, such closure shall be coordinated so that neighbors are as minimally impacted as possible in multiple phases of construction.

K. Non-Profit Entity shall coordinate with Recology for neighborhood garbage collection at the Project Site.

L. Non-Profit Entity shall coordinate with neighbors and the City's Authorized Representative to allow for ingress and egress to properties during construction.

M. Contractor shall not have more than 0.5 acres open with active construction at any one time in the public right-of-way.

N. Contractor shall notify the SFMTA Meter Shop ten (10) business days prior to demolition work in areas with parking meters and once parking areas are reopened to the public.

O. Contractor shall notify the MTA Meter Shop ten (10) business days in advance of new concrete sidewalk pours to coordinate the installation of parking meter sleeves in new concrete sidewalk areas.

P. Tree trimming, replanting and removal shall be coordinated with BUF (Bureau of Urban Forestry). Provide ninety (90) calendar day notice. Tree removal or relocation shall require a permit application and fee to BUF.

Q. Contractor shall notify owners of sub-sidewalk basements in writing at least 30 days prior to performing any work within sub-sidewalk basements to coordinate access to the basements.

R. Only temporary overlay pavement markers shall be placed on top of the micro-surfacing finished work areas. Temporary tape traffic striping may be placed in areas after the permanent striping has been removed. Temporary tape traffic striping shall be removed before the area has micro-surfacing work performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 13 00 - OVERHEAD CONTACT SYSTEM (OCS) ISOLATION AND REPLACEMENT

PART 1 - GENERAL

1.1 OVERHEAD CONTACT SYSTEM (OCS) ISOLATION

A. Non-Profit Entity shall perform, but not be limited to, the following tasks to complete OCS isolation work:

1. Traffic control work for de-energization and re-energization related to OCS isolation work;

2. Attend all necessary safety training and be certified by SFMTA as required before starting said work;

3. Non-Profit Entity shall sign a SFMTA Safety Training Waiver for OCS de-energization with respect to the safety training;

4. Obtain approval of submittals and clearance permit from SFMTA Operations Control Center (OCC) before beginning said work. SFMTA OCC permit application procedure will be discussed as part of the SFMTA safety training;

5. support during de-energization and re-energization of OCS (isolation of OCS) including support regarding installation and removal of sectional insulators; and

6. Perform all related and incidental work required for the isolation of wires in accordance with Technical Requirements and General Order 95 Cal-OSHA requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 00 - ARTWORK COORDINATION

PART 1 - GENERAL

1.1 DEFINITIONS

A. San Francisco Arts Commission (Arts Commission) shall mean the Charter-established City agency that has jurisdiction over all art belonging to the City and charged with the preservation and care of this Artwork.

B. San Francisco Arts Commission Public Art Program shall mean the department responsible for the commissioning of permanent public Artworks to be accessioned into the Civic Art Collection as required by the City's Art Enrichment Ordinance.

C. Artist shall mean a person that designs the Artwork and consults on its fabrication and installation through a separate contract with the City, under the supervision of the San Francisco Arts Commission.

D. Artwork shall mean:

1. Artist-designed graphics integrated into the architectural glazing of the bus ramp on 17th Street measuring approximately 11,000ft^2, facing Franklin Square.

2. Artist-designed graphics integrated into the architectural glazing of a multi-story stairwell measuring approximately 3,800ft^2, located on Mariposa Street at York Street.

3. Large-scale tile Artwork on building façade measuring approximately 3,000ft^2, located on 17th Street at Bryant Street.

E. Public Art Project Manager shall mean the person that represents the San Francisco Arts Commission Public Art Program.

1.2 SUMMARY

A. Section includes:

1. Requirements for installation of Artwork that has been designed for this Project under the direction of the San Francisco Arts Commission (SFAC) Public Art Program.

a. SFAC Public Art Project Manager for this Project, shall be the contact person for all aspects related to the Artwork; coordinate the work of the various artists, and shall receive copies of all communications concerning aspects of the Project Schedule that are pertinent to the Artwork, site preparation, coordination, delivery, installation, and protection of the Artwork.

b. For Tile Artwork:

1) Artwork will be produced by Artist under a separate agreement with the City/San Francisco Arts Commission.

2) Non-Profit Entity shall coordinate any and all work related to the installation of Artwork with the Public Art Project Manager.

c. For Glass Artworks:

1) Artwork digital files will be furnished by the SFAC Public Art Manager.

2) Non-Profit Entity shall coordinate all aspects of fabricating the Artwork in consultation with the SFAC Public Art Project Manager.

3) Non-Profit Entity shall coordinate all aspects of transportation, acceptance and handling of Artwork (e.g., Artwork crates), installation schedule and protection of Artwork, as applicable.

4) Non-Profit Entity shall coordinate any and all work related to installation of Artwork with the SFAC Public Art Project Manager.

d. Non-Profit Entity shall coordinate all aspects of acceptance, storage, transportation, and installation of Artwork including, but not limited to the following:

1) Provide the Arts Commission with shop drawings showing the field verified and hold dimensions, materials of walls where Artwork will be installed.

2) Provide Project Schedule updates to include transportation, unpacking, installation, protection, and cleaning of Artwork.

e. Non-Profit Entity shall coordinate all work related to installation of Artwork with the Public Art Project Manager.

B. San Francisco Arts Commission Contact Person:

1. Public Art Project Manager:

Jackie von Treskow
Senior Program Manager, Public Art
San Francisco Arts Commission
401 Van Ness Avenue, Suite 325
San Francisco, CA 94102
Telephone: (415) 252-2225
Email: jackie.vontreskow@sfgov.org

2. Artists' Contact Information:

a. TBD

C. Artwork:

1. Artworks include but are not limited to:

a. **Artwork graphics** for incorporation into of 17th Street Bus Ramp and Mariposa and York Stairwell glazing.

b. **Graphic ceramic tiles** to be installed on the building exterior.

2. For Glass Artwork:

a. Artwork shall consist of decorative glass units for installation into the building's curtain wall system.

b. Final selection of glass type to be determined through the further development of the specification via the sample review process with the artist and selected vendor.

c. All treatments must have a warranty of 10 years, without degrading of fading.

3. For Tile Artwork:

    a. Artwork shall consist of ceramic tiles for installation on the building façade.

    b. The Arts Commission shall provide and arrange for delivery of Artwork to the Non-Profit Entity-provided secure, weatherproof, conditioned storage site within a thirty-mile radius of San Francisco for temporary storage prior to installation by the Non-Profit Entity into the Infrastructure Facility as indicated on the Final Design Documents.

    c. Non-Profit Entity shall coordinate the receipt of Artwork, inspection, storage, field verification of site conditions, transportation from storage to project site and installation of the Artwork and related contract activity, provide services as specified in this Section, and protect Artwork during and after installation until Final Acceptance.

4. Artwork must be integrated with construction of the Infrastructure Facility and installation coordinated and scheduled to align with the work and schedule of other trades.

5. Non-Profit Entity shall include Artwork installation and protection as an activity in the Non-Profit Entity's Project Schedule based on coordination discussions during the pre-installation conference(s). Non-Profit Entity shall notify the Public Art Project Manager in writing of all changes in the Project Schedule related to the Artwork(s), and is responsible for contacting the Public Art Project Manager with specific installation dates for the Artwork no less than 90 days in advance of installation.

1.3 SCHEDULING

A. Non-Profit Entity's Project Schedule shall include the following milestones:

1. Date of delivery of Artwork to the Project Site;

2. Date(s) of pre-installation Conference(s)

3. Dates of Artwork installation

4. Date of Artwork acceptance.

B. Additional activities shall include, but not be limited to the following: pre-production, submittals, shop drawings, samples, and field inspections.

C. Upon completion of installation, inspection will be scheduled with Artist, Public Art Project Manager, Non-Profit Entity, and the City's Authorized Representative for final acceptance of the Artwork. If repairs to the Artwork are required, the Non-Profit Entity shall complete these and other punch list items before approval by Artist, Public Art Project Manager, and the City's Authorized Representative.

1.4 SUBMITTALS

Non-Profit Entity shall prepare and submit the following to the Public Art Project Manager, Artist(s), and City's Authorize Representative. No work shall proceed until shop drawings of the Artwork are approved by the Arts Commission and Artists:

A. Shop Drawings:.

1. Base drawings for layout of Artwork: shall include areas receiving Artwork, incorporate field-verified finish dimensions of the overall area, locations and dimensions of openings, construction, joint layouts, descriptions of finish and structural support details. The

submitted base drawings shall be the basis for the artists to provide rough layout guidelines for the Non-Profit Entity to prepare final installation shop drawings indicated below.

2. Protection Plan: location and information regarding storage location for the Artwork, protection materials and necessary equipment, attachment details, and work plan to protect installed Artwork in-place until project completion.

B. Product Data:

1. Manufactured Products, including Sealants.

2. Manufacturer's specifications, recommendations, and installation instructions - including cleaning and preparation of substrates for each product to be used.

3. Protection materials and equipment.

C. Samples:

1. For Glass Artwork:

a. Minimum 12" x 12" samples to be provided.

1) Submit up to 6 initial 12"x 12" square samples to show full range of colors, details of graphics, and visual transparency. Adjustments by Artist to Artwork digital graphics files may be made by Artist in response.

2) Submit up to 6 additional 12"x12" samples based on adjusted graphics.

b. Minimum 24" x 24" samples to be submitted following approval of 12"x12" samples.

1) Submit up to 2 initial 24"x24" square samples to show full range of colors, details of graphics, and visual transparency. Adjustments by Artist to Artwork digital graphics files may be made by Artist in response.

2) Submit up to 2 additional 24"x24" square samples based on adjusted graphics.

c. For Tile Artwork: Color samples of sealants, grouts and any other Non-Profit Entity-provided materials exposed to view.

d. Protection materials.

2. Quality Control: Statement of qualifications for each installer related to Artwork. The Non-Profit Entity shall provide supporting documentation indicating past experience for each installer upon request of the Arts Commission.

1.5 PRE-ARTWORK INSTALLATION CONFERENCES

A. Non-Profit Entity to provide no less than 14 days advance notice and confirm attendance by Public Art Project Manager, Artist, and City's Authorized Representative.

1.6 IDENTIFICATION AND RESPONSIBILITY

A. Unless otherwise indicated, all items of work associated with the receipt of Artwork, initial inspection, storage, transportation, installation and protection of the Artwork indicated are the Non-Profit Entity's responsibility.

B. Non-Profit Entity shall jointly inspect the condition of each piece of Artwork with the Arts Commission upon receipt of Artwork delivery at the Non-Profit Entity's storage site and shall re-package the Artwork to the satisfaction of the Arts Commission after the inspection for storage and for subsequent transportation to the Project Site.

C. Installation requirements shall be as specified and as shown on the Non-Profit Entity's approved installation shop drawings. Artist and the Arts Commission shall be responsible for reviewing and approving the Non-Profit Entity-prepared installation shop drawings. Non-Profit Entity shall be responsible for preparation of substrates, wall recesses and openings, surfaces, and finishes in accordance with the approved shop drawings.

D. Non-Profit Entity Responsibilities. Non-Profit Entity shall:

1. Submit all Submittals as specified in this Section 01 14 00.

2. For Glass Artwork:

   a. Coordinate sampling process with the SFAC Public Art Project Manager.

   b. Coordinate the fabrication of Artwork in accordance with the requirements of SFAC.

3. For Tile Artwork: Prepare substrates, surfaces, and finishes receiving and/ or surrounding Artwork.

4. Receive, inspect, handle, repackage, protect, and store Artwork at an approved storage location not at the project construction site, and transport Artwork from the storage location to the Project Site for installation.

5. Install Artwork as shown on reviewed and approved shop drawings, under the supervision of the Arts Commission, Public Art Project Manager, Artist, and the City's Authorized Representative.

6. Develop installation schedule in consultation with Arts Commission for each Artwork element. Notify the Arts Commission of installation schedule for each Artwork.

7. Provide all anchorage, mounting, and installation devices and materials, hardware, and trim for Artwork as specified below, or as otherwise necessary to complete installation of the Artwork.

8. Replace and reinstall any and all defective installations by Non-Profit Entity of Artworks, to be determined by the Arts Commission.

9. Be responsible for cost of repair and replacement solely by the original Artist of any Artwork elements that are broken or damaged by Non-Profit Entity from the moment the Non-Profit Entity takes possession of the Artwork, during handling, unpacking, storage, transporting and installation, and until acceptance by the Arts Commission or Final Acceptance, whichever comes first.

E. Arts Commission Responsibilities. The Arts Commission will:

1. For Glass Artwork:

   a. Deliver digital production files of Artwork for glass fabrication.

   b. Communicate sampling process with Artist.

2. For Tile Artwork:

    a. Fabricate and deliver Artwork in a timely manner to a predetermined storage location for Non-Profit Entity acceptance, storage and installation with related construction.

3. Coordinate shop drawing review comments from the Artist to the City's Authorized Representative and Non-Profit Entity.

4. Conduct joint inspection of Artwork with Non-Profit Entity upon delivery of Artwork to storage location.

5. Coordinate with Non-Profit Entity for the time of delivery and method of transporting Artwork, storage, and supervision for installation of each Artwork item.

6. Review and approve installation of each Artwork as installation is completed by Non-Profit Entity.

7. Coordinate communication between Non-Profit Entity and Artist, and between Non-Profit Entity and other fabricators of Artwork.

1.7 PROJECT CONDITIONS

A. *[Left intentionally blank]*

1.8 QUALITY ASSURANCE

A. Pre-Installation Conferences(s): Non-Profit Entity shall schedule pre-installation meeting(s) with the City's Authorized Representative, Public Art Project Manager, Artist (if necessary), and appropriate members from the DB Contractor to coordinate and review details, schedules and responsibilities for the Work described in this Section.

B. The coordination and installation Work described in this section is integral with the Artwork. This work will be held to close scrutiny by the Arts Commission. The Non-Profit Entity shall hire qualified workers with demonstrable experience in handling, protection, and installation of glass, tile, and other materials used in the Artwork and shall ensure that such workers and materials meet the applicable qualifications set forth in clauses (C) and (D) below.

C. Glass Artwork Manufacturer Qualifications:

1. Manufacturer shall have experience sufficient to demonstrate at least 15 Artwork projects of similar size with digitally printed images on glass used at exterior locations.

2. Manufacturer of Artwork glass shall be capable of providing digitally printed inks on the same surface as low-E coatings.

3. All fabrication of glass, including cutting, drilling, grinding, and notching, shall be completed prior to application of artwork.

4. Digitally printed glass shall be viewed from 5 feet under natural daylight conditions for inspection of image quality.

    a. Defects such as pinholes, fisheyes, perceived color variation, and/or streaks shall not be acceptable when observable at 5 feet or more.

b. Image variation including off-parallel, missing, or shift images shall not be acceptable when observable at a distance of 5 feet. Image variation along the edges of the glass are not acceptable if they occur more than 1/8” from edge of glass.

D. Installer of Artwork Qualifications:

1. Installer shall have at least 5 years demonstrable experience in installation of similar artworks of types, materials, and sizes to be installed for this Project and shall be acceptable to the Arts Commission. Experience shall be documented in the form of a list of five (5) relevant completed projects with contact information for project references and a resume.

2. Installer must demonstrate experience in handling finely crafted elements, evidence of service orientation, capability of meeting close tolerances, and ability to work with the Arts Commission and Artists who will oversee and supervise the installation of the Artwork.

E. Mock-ups:

1. For glass Artwork panels, Non-Profit Entity shall provide three full size mock-ups as will be discussed/confirmed at the pre-production meeting. Final location of the mockups will be as approved by the SFAC Public Art Project Manager. The mock-ups shall be a complete installation to illustrate the interface between Artwork and joints between glass panels, including applicable sealants and lighting as indicated on the drawings or required by the specifications. Once approved, the full size in place mock-ups will be used as the standard for the subsequent installation quality of all glass panels for Artwork.

2. If applicable, for two-dimensional wall mounted tile artwork, Non-Profit Entity shall install at least a 4’-0” x 4’-0” area on each wall to receive artwork. Installed samples are to serve as a mock-up for review and approval by the Arts Commission, Artist, and Non-Profit Entity for the installation workmanship, spacing and visual effect.

3. Each such mock-up, if approved by the Arts Commission and the City’s Authorized Representative, shall be the standard for installation of all art elements of the same type and may be incorporated in the final installation.

4. If any mock-up is not approved by the Arts Commission and the City’s Authorized Representative, Non-Profit Entity shall remove rejected mock-ups and create new mock-ups for review until approval is provided.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Non-Profit Entity shall receive, inspect, store, transport and handle Artwork and installation components with extreme care; and shall provide protective wrapping and padding as requested by the Arts Commission, and as otherwise required, until Artwork installation is completed.

1.10 WARRANTY

A. Non-Profit Entity shall provide a 5-year warranty for all labor and materials related to the installation of all Artwork.

PART 2 - PRODUCTS

2.1 ARTISTS AND ARTWORK

A. The Non-Profit Entity shall communicate solely with the Arts Commission through the Public Art Project Manager for all matters related to the Project installation schedule, delivery, storage, handling, actual installation, protection, and all other considerations related to the Artwork.

B. The Non-Profit Entity shall not contact any Artist directly without prior written authorization from the Public Art Project Manager.

2.2 INSTALLATION MATERIALS AND COMPONENTS

A. All setting materials, grout, sealants, metal connections, anchors and fasteners and accessories shall be specified in shop drawings by Non-Profit Entity

B. Colors for exposed items and materials will be selected by the Public Art Project Manager from manufacturer's custom colors.

C. Metal Connections, anchors and fasteners for glass Artwork shall:.

1. provide for expansion and contraction of artwork and substrate caused by a temperature range of 120 degrees F over a 12-hour period without detrimental effect to artwork, substrate, or supports.

2. support loads imposed by Artwork and to bridge variations in wall construction.

PART 2 - EXECUTION

2.3 EXAMINATION

A. Non-Profit Entity shall verify that surfaces, supporting structures, materials, and locations to receive Artwork have been reviewed and approved by the Public Art Project Manager and Arts Commission prior to installation of Artwork. If the Public Art Project Manager and Arts Commission determine that unsatisfactory conditions exist, Non-Profit Entity shall not commence installation until such conditions have been corrected.

B. Non-Profit Entity shall verify that field measurements are as shown on reviewed and SFAC-approved shop drawings.

C. Non-Profit Entity shall verify that staging area is of appropriate size and configuration for delivery and unloading of Artworks.

D. Non-Profit Entity shall verify that the delivery access from street level to the designated art locations is of the appropriate size, configuration and handling for delivery and unloading of Artworks.

2.4 INSTALLATION

A. Non-Profit Entity shall (i) provide a minimum of one month notice to SFAC and Artist prior to the actual start date of Artwork installation and (ii) show notice date in the Non-Profit Entity's Project Schedule as a milestone.

B. Non-Profit Entity is responsible for installing the Artwork in accordance with the requirements in the specification and as indicated in the Final Design Documents.

C. Non-Profit Entity shall be responsible for coordinating and implementing the work as required for the SFAC and the Artist as indicated in the Final Design Documents.

D. Non-Profit Entity shall protect the Artworks per approved installation plan.

E. At Substantial Completion, Non-Profit Entity shall (i) remove protective coverings only when directed by the Public Art Project Manager; and (ii) clean the Artwork, along with related setting materials and support or attachment devices to the satisfaction of the Public Art Project Manager and Arts Commission.

2.5 ACCEPTANCE OF ARTWORK BY CITY

A. The Public Art Project Manager will inspect and document Artwork upon completion of the Artwork installation.

B. The Public Art Project Manager and Arts Commission will approve or reject the condition of the Artwork upon notice of Substantial Completion as part of the Final Acceptance procedures.

2.6 ACCEPTANCE OF ARTWORK BY NON-PROFIT ENTITY

A. Non-Profit Entity shall provide Risk of Loss insurance for the Artwork.

B. Upon acceptance of Artwork by the Public Art Project Manager and Arts Commission, Non-Profit Entity shall protect Artwork in accordance with corresponding, approved Submittals.

C. Non-Profit Entity shall pay costs associated with the correction of any damage to Artwork caused during construction. Non-Profit Entity shall make repairs to Artwork to the satisfaction of the Arts Commission and the Artist.

2.7 PROTECTION OF ARTWORK BY NON-PROFIT ENTITY

A. Non-Profit Entity shall protect Artworks from damage during and after installation and damage from adjacent construction work. Protection includes but is not limited to non-staining, non-adhesive protective coverings, temporary equipment and other materials.

B. Non-Profit Entity shall remove coverings at time of Substantial Completion.

C. Non-Profit Entity shall be responsible for damages resulting from mishandling or inadequate protection until Art Commission approval or Final Acceptance, whichever is earlier. Damaged Artwork shall be repaired or replaced at the Non-Profit Entity's expense.

2.8 CLEANING

A. Immediately prior to Substantial Completion, Non-Profit Entity shall remove coverings and clean Artwork, along with related setting materials and support/attachment devices, in a manner acceptable and under the supervision of the Public Art Project Manager and Arts Commission. Non-Profit Entity shall coordinate a test area with the Public Art Project Manager and clean the test area before proceeding with the rest of the Artwork. Non-Profit Entity shall ensure that installed Artwork is free of dust, debris, and foreign matter.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 33 - PARTNERING PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This specification sets forth the requirements for the City and Non-Profit Entity to establish a collaborative partnering process for the Project. The partnering process will assist the Parties to develop a collaborative environment so communication, coordination, and cooperation are the norm, and to encourage resolution of conflicts at the lowest responsible management level.

B. The partnering process is not intended to have any legal significance or to be construed as denoting a legal relationship of agency, partnership, or joint venture between the City and Non-Profit Entity.

C. This specification does not supersede or modify any other provisions of this Agreement, nor does it reduce or change the respective rights and duties of the Parties under this Agreement, or supersede contractual procedures for the resolution of disputes, including the submittal of a timely Notice of Contract Dispute.

1.2 DEFINITIONS

Unless specifically defined in this specification, all capitalized terms have the same meaning as defined in Exhibit 1 (Abbreviations and Definitions) of this Agreement.

A. Executive Team: Senior leaders from both the City and Non-Profit Entity organizations responsible for steering the Project to success. The Executive Team may function as the Project's board of directors.

B. Project Team: Key members of the City and Non-Profit Entity responsible for managing, implementing, and executing the Project, and who will participate in the partnering process.

C. Stakeholders: Any third party with a vested interest in the Project's outcome. Examples include end users, neighbors, vendors, and regulatory and funding agencies.

1.3 PURPOSE/GOALS

A. The goals of project partnering are to:

1. use early and regular communication with involved parties;

2. establish and maintain a relationship of shared trust, equity and commitment;

3. identify, quantify, and support attainment of mutual goals;

4. develop strategies for using risk management concepts and identify potential project efficiencies;

5. implement timely communication and decision-making;

6. resolve potential problems at the lowest possible level to avoid negative impacts;

7. hold periodic workshops to maintain the benefits of a partnered relationship;

8. establish periodic joint evaluations of the partnering process and attainment of mutual goals.

1.4 COSTS

A. Each party shall bear 50% of the costs of the partnering process set forth in this Section. No mark-up, overhead or other fees shall be added to the partnering costs. If the Non-Profit Entity fails or refuses to pay the facilitator invoices, the City may pay such invoices and deduct the Non-Profit Entity's portion from any amount that is due or may become due under the Agreement.

B. The fees and expenses of the facilitator, partnering training and workshop site costs, if any, shall be paid for by Non-Profit Entity.

C. Non-Profit Entity shall pay the invoices of the facilitator and/or workshop site costs after approval by both Parties and may seek reimbursement for City's share on its invoices.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 PARTNERING INITIATION

A. No later than 60 days following NTP 1, Non-Profit Entity shall send the City a written invitation to enter into a partnering relationship for the Project.

3.2 PARTNERING ELEMENTS

A. At minimum, the Parties shall incorporate into the partnering relationship the following elements:

1. **Executive Sponsorship.** A commitment from the Executive Team to support and participate in the partnering process.

2. **Collaborative Partnering.** A structured and scalable process made up of elements that develop and grow a culture (i.e., value system) of trust between the Parties. Together, the combination of elements including the partnering charter, executive sponsorship, partnering workshops, accountability tools for the Project Team, and the facilitator create a collaborative atmosphere on the project.

3. **Facilitator.** The Parties shall select a professional neutral facilitator according to the process described in Section 3.3, below, to lead workshops.

4. **Partnering Charter and/or mission statement.** The Parties shall create a partnering charter that is the guiding focus for the Project Team. It shall document the Project Team's vision and commitment to work openly and cooperatively together toward mutual success during the Term. The partnering charter helps to maintain accountability and clarity of agreements made and allows for broader communication of the Project Team's distinct goals and partnering process. At minimum, the partnering charter must include the following elements:

    a. Mutual goals, including, at minimum, core goals related to the Project's schedule, budget, quality, and safety.

    b. Partnering maintenance plan that describes the frequency of partnering sessions, described in [Section 3.2.A.7], below.

    c. Dispute resolution plan that includes an Issue Resolution Ladder, described in [Section 3.2.A.6], below.

d. Team commitment statement and signatures.

5. **Partnering Workshops.** The Parties shall hold the following partnering workshops:

   a. **Kick-off Partnering Workshop.** The Parties shall hold a kick-off partnering workshop to mutually develop the framework for a successful partnering process. During the kick-off partnering workshop the Parties shall: (i) identify the members of the Project Team, Executive Team, and initial Stakeholders; (ii) draft a partnering charter and its components, described in [Section 3.2.A.4], above; (v) determine the locations for partnering workshops; and (vi) address other administrative details, as necessary.

   b. **Project Team Partnering Workshops.** The Parties shall hold regularly scheduled partnering workshops for the Project Team as determined in the kick-off partnering workshop. Each workshop is a formalized meeting focused on developing a collaborative culture among the Project Team. The Project Team may use these workshops to set goals or commitments for the Project, attend joint training sessions, and perform other tasks. These partnering workshops are intended for the Project Team, though other partnering participants may attend as needed depending on the subject matter. Quarterly workshops are recommended.

   c. **Executive Team Partnering Workshops.** The Parties shall hold partnering workshops or sessions for the Executive Team as determined in the kick-off partnering workshop.

6. Stakeholder Participation

   a. If the Parties mutually agree, they may hold partnering workshops or sessions where they invite Stakeholders. The purpose of these workshops or sessions is that they be conducted as listening sessions where Stakeholders provide input. Frequency shall be as determined in the kick-off partnering workshop. Bi-annually workshops are recommended.

7. **Issue Resolution Ladder:** The Parties shall mutually develop a stepped process that structures informal, project-level negotiations between the Parties to addresses issues or disputes ("Issue Resolution Ladder"). The intent of this Issue Resolution Ladder is to provide a process that quickly elevates issues or disputes up the chain of command between the Parties before they proceed to mediation. The objective is to resolve issues or disputes at the lowest practical level and to not allow individual project issues to disrupt project momentum. When an issue or dispute is escalated one level, it is expected that a special meeting focusing on the negotiated settlement for that issue will be called with the goal of settling as quickly as possible.

Sample Issue Resolution Ladder			
Team Level	**City Department**	**Non-Profit Entity**	**Time to Elevate**
1	Project Manager	Project Manager	2 weeks
2	Project Director	Project Director	2 weeks
3	Division Manager	CEO	2 weeks
4	Deputy Department Director	Equity Member's Project Principal	2 week

8. Project Survey:

   a. The Parties shall participate in periodic partnering evaluation surveys to measure progress on mutual goals and short-term key issues as they arise.

3.3 SELECTION OF A FACILITATOR

A. No later than 90 days after NTP1 the Parties shall meet to mutually select a professional neutral facilitator for the Project in time to schedule and lead the kick-off partnering workshop. The facilitator shall lead other, follow-up partnering workshops and, if necessary or required, additional sessions.

B. The qualifications for the facilitator are, as follows:

   1. The facilitator shall be trained in the recognized principles of partnering;

   2. The facilitator shall have at least three years' experience in providing partnering facilitation services for public-sector construction projects;

   3. The facilitator shall have experience in construction management, negotiations, labor-management mediation, and/or human relations; and

C. The City, Non-Profit Entity, and the selected facilitator shall execute a third-party facilitator agreement. This agreement shall establish a budget for fees and expenses of the facilitator, workshop site costs, if any, and the terms of the facilitator's role consistent with the requirements of this specification.

D. The facilitator shall be evaluated by the Project Team: (i) at the end of the kick-off partnering workshop; and (ii) at the close-out partnering session.

E. If either the City or Non-Profit Entity is not satisfied by the services provided by the facilitator, a new and mutually acceptable facilitator shall be chosen in a reasonable amount of time and a new agreement shall be executed by Non-Profit Entity and the new Professional Neutral Facilitator pursuant to [Paragraph 3.3.C].

3.4 FACILITATOR QUALIFICATIONS AND REQUIREMENTS; EVALUATIONS

A. The facilitator shall be trained in the recognized principles of partnering.

B. The facilitator shall have the following professional experience and qualifications:

   1. At least 3 years' experience in partnering facilitation with a demonstrated track record, including public sector construction for a city or other municipal agency; and,

   2. Skill set that may include construction management, negotiations, labor management mediation, and/or human relations.

C. The facilitator shall be evaluated by the partnering team: (1) at the end of the kick-off partnering workshop; and (2) at the project close-out partnering session.

END OF SECTION

SECTION 01 32 33 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. General: This Section specifies administrative and procedural requirements for the submittal of pre-construction and construction photographs.

1.2 SUBMITTALS

A. General: All submitted photos will be kept by the City and will not be returned.

1. Pre-construction photographs: Non-Profit Entity shall submit pre-construction photographs in digital format as a condition precedent to NTP 2. Photos shall survey the Project Site with enough detail to show the conditions of the Project Site and adjacent buildings (exteriors and interiors) before the start of the D&C Work. NPE shall provide photographs from both the exterior of the building as well as the interior spaces.

    a. Photographs shall be individually labeled using numbering or lettering that identifies the location on a site plan and floor plans as well as a roof plan, see additional requirements below.

2. Construction Photographs: Non-Profit Entity shall submit construction photographs as described herein.

B. Format: Unless otherwise directed by the City, Non-Profit Entity shall submit photographs in digital format as high resolution images showing the date and time photographs were taken, transmitted on a CD, DVD, USB drive, or other medium as acceptable to the City.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Non-Profit Entity shall provide images in uncompressed TIFF or JPEG format, produced by a digital camera with a minimum sensor size of 10.0 megapixels and at an image resolution of not less than 3072 by 2304 pixels. The City will have all rights as owner of all photographs, including unrestricted use of and right to publish images.

PART 3 - EXECUTION

3.1 PHOTOGRAPHIC REQUIREMENTS

A. General: Non-Profit Entity shall take photographs using the maximum range of depth of field and that are in focus to clearly show the D&C Work. Photographs with blurry or out of focus areas will not be accepted.

1. Non-Profit Entity shall maintain a key plan with each set of construction photographs that identifies each photographic location.

B. Construction Photographs

1. Frequency: Non-Profit Entity shall take photographs as necessary to show progress of D&C Work, as a minimum coinciding with the 1st and 15th days of every month.

2. Non-Profit Entity shall take photos, including those for each bid item, showing different areas of D&C Work in progress. Photographs shall be taken such that the item or location being photographed shall be determinable from within the set of photographs.

3. Non-Profit Entity shall provide a location plan indicating the viewpoint from which the above-described photographs were taken and what they were taken of for each photograph. When possible, Non-Profit Entity shall take the photographs from the same location to provide a history of the progression of the Work.

C. Completion Photographs

1. Non-Profit Entity shall take photographs of each major phase or component of the D&C Work, as requested by the City and at a minimum at both Substantial Completion and Final Acceptance. Each major phase shall be established and identified in the Project Schedule.

D. Additional Photographs: The City may issue requests for additional photographs, in addition to the periodic photographs required to be submitted in accordance with this Section 01 32 33.

1. The City will provide NPE with three-Day's Notice of the requirement for additional photographs.

2. Circumstances that could require additional photographs include:

a. The City’s request for special publicity photographs.

b. Special events planned at the Project Site.

c. Immediate follow-up when on-site events result in construction damage or losses.

d. Extra record photographs after Final Acceptance.

END OF SECTION

SECTION 01 35 43 - ENVIRONMENTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes:

1. General Construction Best Management Practices
2. Stockpile Management Best Management Practices
3. Dust Control Best Management Practices
4. Standard Stormwater Best Management Practices
5. Spill and Leak Control Best Management Practices
6. Emissions-Control Best Management Practices
7. Construction Noise Control Best Management Practices
8. Naturally Occurring Asbestos (NOA)
9. Asbestos Dust Mitigation Plan
10. Night Work
11. Environmentally Sensitive Area (ESA)
12. Bird Protection
13. Bat Protection (Not Applicable)
14. Tree Protection
15. Project Site Restoration
16. NOT USED
17. Human Remains Archeological Resource Protection
18. Historical Cultural Resource Protection
19. San Francisco Environmental Code Clean Construction Requirements for Work in an Air Pollutant Exposure Zone (APEZ)
20. Construction Project Site Runoff Control Permit
21. Storm Water Pollution Prevention Plan (Not Applicable)
22. Water Quality Permitting
23. Emergency or Backup Diesel Generator Health Risk Reduction Plan
24. Fixed Mechanical Equipment Noise Control for Building Operations
25. Design Measures to Reduce Project Specific Wind Impacts

B. Plan Information Related to This Section
The following supplemental information shall be shown on the Design Documents:

1. Air Pollution Exposure Zone (APEZ) extent (see Article 3.20 of this section)

2. Areas within an MS4 within the jurisdiction of the Port of San Francisco (see Article 3.04 of this section)

3. Environmentally Sensitive Area (ESA) - Archaeological Monitoring Required for Ground Disturbance (see Article 3.18 of this section)

4. ESA - Biology/Other (see Article 3.11 of this section)

5. Disturbed areas whose surface is not otherwise converted to gravel, to pavement, to new landscaping as indicated on plans, or to new facilities (see Article 3.15 of this section)

6. Existing historic material in right-of-way, including granite curb (see Article 3.19 of this section)

7. Limits of mapped naturally occurring asbestos (see Article 3.05 and 3.06 of this section)

8. Species of trees to be removed or pruned (see Article 3.14 of this section)

1.2 REFERENCES

A. “Standard Construction Measures for all San Francisco Public Works Projects”. San Francisco Public Works, July 1, 2017

B. American National Standards Institute (ANSI). 2008. American National Standard for tree care operations – Tree Shrub and Other Woody Plant Maintenance – Standard Practices (A300 Part 1): Pruning.

C. American National Standards Institute (ANSI). 2006. Safety Requirements for arboricultural Operations (Z133). New York, NY

D. Andrews, Jim, P.E., David Buehler, P.E., Harjodh Gill, Ph.D., Wesley L. Bender, Transportation and Construction Vibration Guidance Manual [CT-HWANP-RT-20-365.01.01]. California Department of Transportation, April 2020

E. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, And Surface Mining Operations (California Code of Regulations Title 17, Section 93105)

F. Bald and Golden Eagle Protection Act, 16 USC § 668.

G. Bay Area Air Quality Management District, “Current Rules”. Bay Area Air Quality Management District, California Environmental Quality Act Air Quality Guidelines. May 2017.

H. Berglund, B. Guidelines for Community Noise - A complete, authoritative guide on the effects of noise pollution on health. World Health Organization, Geneva, 1999.

I. California Code of Regulations, Title 8 Sec. 1592.

J. California Department of Transportation Construction Site Best Management Practices (BMPs) Manual.

K. California Fish and Game Code §§ 3503, 3513, and 3800.

L. California Register of Historical Resources. California State Water Resources Control Board, Construction General Permit Order. California Stormwater Quality Association (CASQA), Construction BMP Handbook.

M. Caltrans Storm Water Quality Handbooks Construction Site Best Management Practices Manual.

N. San Francisco Municipal Transportation Agency, 2012. Regulations for Working in San Francisco Streets, 8th ed. City of San Francisco, June 27, 2006. “Pruning Standards for Trees”. Federal Migratory Bird Treaty Act (16 USC § 703–711, 50 CFR 10)

O. Geological Features & Special Permits (California Public Resources Code Section 4307 and Section 4309).

P. National Historic Preservation Act of 1966, (16 U.S.C. 470).

Q. National Register of Historic Places. Native American Historic Resource Protection Act; Archaeological, Paleontological, and Historical sites; Native American Historical, Cultural, and Sacred sites (California Public Resources Code Section 5097-5097)

R. San Francisco Department of Public Health, “Monitoring Guidelines for SFHC Article 22B”. San Francisco Environment Code Chapter 19: Mandatory Recycling and Composting. San Francisco Environment Code Chapter 25: Clean Construction Requirements for Public Works.

S. San Francisco Health Code Article 22B – Construction Dust Control Ordinance #176-08. San Francisco Industrial Waste Ordinance #19-92.

T. San Francisco Planning Code Article 10: Preservation of Historical Architectural and Aesthetic Landmarks.

U. San Francisco Planning Code Article 11: Preservation of Buildings and Districts of Architectural, Historical, and Aesthetic Importance in the C-3 Districts.

V. San Francisco Planning Department, “Environmental Review Resources”.

W. San Francisco Police Code, Article 29, Ordinance #274-72 ("Noise Ordinance").

X. San Francisco Public Health Code, Article 22B: Construction Dust Control Requirements.

Y. San Francisco Public Utilities Commission, Design Guidelines and Standards. Available at

Z. San Francisco Public Works Code, Article 4.1 Sewer Use Ordinance.

AA. San Francisco Public Works Code, Article 4.2 Sewer System Management Ordinance.

BB. San Francisco Public Works Code, Ordinance No. 260-13, Construction site Runoff Ordinance.

CC. San Francisco Public Works Order 158,170, Wastewater discharges into the City sewerage system.

DD. San Francisco Public Works Order 171,333, Dust Generation and Control Regulations.

EE. San Francisco Public Works Order 171,378 Dust Control Order.

FF. San Francisco Public Works Order 171,442 Regulation for Excavating and Restoring Streets in San Francisco.

GG. San Francisco Public Works Order 172,596, Guidelines for Processing and Issuance of Special Sidewalk Permits within the Downtown Streetscape Areas.

HH. San Francisco Public Works Order 174,878, Regulations and Slip Resistant Standards for Any Manhole, Vault, or Sub-Sidewalk Basement Cover, Grille, Grate on the Public Sidewalk.

II. San Francisco Public Works Order 178,940, Regulations for Excavating and Restoring Streets in San Francisco.

JJ. San Francisco Public Works Order 200,369, Standard Paving Materials in San Francisco's Public Right of Ways.

KK. San Francisco Public Works Order 201,954, Recycling Cobblestones and Granite Curb.

LL. Swiecki, Tedmund J.; Bernhardt, Elizabeth A. 2013. A reference manual for managing sudden oak death in California. Gen. Tech. Rep. PSW-GTR-242. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Grove.

1.3 DEFINITIONS

A. Air Pollutant Exposure Zone: A zone having a substantially greater than average concentration of air pollutants as defined in San Francisco Health Code Section 3804.

B. ALERT sheet: Single-page flyer produced by the San Francisco Planning Department and provided to Non-Profit Entity, containing a notification that the project site may be located in an archaeologically sensitive area.

C. Alternative Fuels: Any transportation fuel that is less polluting than gasoline or petroleum diesel fuel, as determined by the California Air Resource Board and that is shown to have lower lifecycle carbon emissions than gasoline or petroleum diesel. Alternative Fuels may include but are not limited to natural gas; propane; biofuels from low carbon, sustainable and preferably local sources; hydrogen.

D. Alternative Sources of Power: Utility-based electric power or other power sources other than diesel engines.

E. CARB: The California Air Resources Board.

F. Archaeological resources: Remains of past human activity, including historic and prehistoric material such as tools and tool fragments, hearth and food remains, structural remains, and human remains.

G. Bridge: A structure that carries a utility or railroad or vehicle, pedestrian, or other traffic over, under, or around obstructions or waterways.

H. Building: A building as defined in the San Francisco Planning Code Section 102, Definitions.

I. CDFW: The California Department of Fish and Wildlife.

J. (Not used).

K. Clean Construction: The performance of all Construction Work required to be performed in the Contract Documents meeting the requirements in Sections 2504, 2505 and 2506 of the Environment Code, as applicable.

L. Construction Activities: The performance of all Construction Work, except for the issuance or obtaining of a site permit.

M. (Not Used).

N. Construction Phase: A particular construction activity over a certain period of time. Construction Phases may include demolition, site preparation, grading, building construction, architectural coatings, and paving. Multiple Construction Phases of a single project may take place at the same time.

O. SFDPH: The San Francisco Department of Public Health.

P. Environmentally Sensitive Area (ESA): Area within or near construction limits where access is prohibited or limited in order to protect environmental resources. An ESA – Biology is an ESA established to protect biological resources.

Q. Equipment Type: A category of off-road equipment (movable equipment not approved for driving on highways). Types of off-road equipment include bore/drill rigs, cranes, crawler tractors, excavators, graders, off-highway tractors, off-highway trucks, other construction equipment, pavers, paving equipment, rollers, rough terrain forklifts, rubber-tired dozers, rubber-tired loaders , scrapers, skid steer loaders, surfacing equipment, tractors/loaders/backhoes, and trenchers.

R. Erosion and Sediment Control Plan (ESCP): A site-specific plan that details the use, location and emplacement of sediment and erosion control devices.

S. Feasible: When applied to an action required of Non-Profit Entity, that action can be accomplished without resorting to extraordinary means and measures.

T. Ground surface: The top of existing soil or the level of the finished grade of a facility, sidewalk, or roadway.

U. Historic buildings, historic structures, and other historic resources: Buildings, structures, or other resources labeled as historic structures on Design Documents or in Reference Documents.

V. Inactive nests: Nests that do not contain eggs, chicks, or raptors displaying reproductive behavior.

W. In-Water Work: Work to be conducted below Mean Higher High Water (MHHW) lines as defined by the National Oceanic and Atmospheric Administration.

X. Land disturbance: Any movement of earth or a change in the existing natural soil cover or existing topography that may result in soil erosion from wind, or water, and the moving of sediments into or upon waters, lands or public rights-of-way within the City and County of San Francisco, including, but not limited to building demolition, clearing, grading, grubbing, filling, stockpiling, excavating and transporting over land.

Y. Major Construction Project: A public work to be performed within the geographic limits of the City and County of San Francisco that uses off-road equipment and that is estimated to require 20 or more cumulative days of work, including non-consecutive days, to complete.

Z. Most Effective Verified Diesel Emission Control Strategy (VDECS): a device, system or strategy that is verified, pursuant to Division 3, Chapter 14, of Title 13 of the California Code of Regulations, to achieve the highest available level of pollution control.

AA. Nesting Season: The City Planning Department anticipates nesting or attempted nesting by migratory and non-game birds from February 15 to August 31.

BB. Off-Road Engine: A non-road engine as defined in Title 40 of the Code of Federal Regulations, Section 89.2.

CC. Off-Road Equipment: Equipment with an off-road engine having greater than 25 horsepower and operating for more than 20 total hours over the entire duration of Construction Activities.

DD. On-Road Equipment: A heavy-duty vehicle as defined in Title 40 of the Code of Federal Regulations, Section 86.1803-01.

EE. Paleontological resources: Fossils and the deposits in which they are found. Fossils are evidence of ancient life preserved in sediments and rock. Examples of paleontological resources are the remains of (1) animals, (2) animal tracks, (3) plants, and (4) other organisms. Archaeological resources are not paleontological resources. Fossils found within an archaeological resource are generally considered archaeological not paleontological resources.

FF. PAR: Pedestrian access route as defined in the ADA and ABA Accessibility Guidelines for the Public Right-of-Way (An accessible, continuous, and unobstructed path of travel for use by pedestrians with disabilities within a pedestrian circulation path).

GG. Plant species that may harbor *Phytophthora*: The City Planning Department considers host species to include: Coast Live Oak (*Quercus agrifolia*), Canyon Live Oak (*Quercus chrysolepis*), California Black Oak (*Quercus kelloggii*), Shreve's Oak (*Quercus parvula* var. *shrevei*) , Tanoak (*Notholithocarpus densiflorus*), California bay laurel (*Umbellularia californica*).

HH. Portable Diesel Engine: A diesel engine that is portable as defined in 71 California Code of Regulations, Section 93116.2(bb).

II. Property line: The line at the ground surface at which the public right-of-way adjoins a platted parcel.

JJ. Rain event: A rain event is a forecast for the project area by the National Weather Service of a 50 percent chance of occurrence within the following 72 hours of an amount of precipitation of 0.50 inch or greater.

KK. Regulated Species: Species protected by one or a combination of the following:

1. Federal Endangered Species Act of 1973, 16 USC§ 1531 et seq.

2. California Endangered Species Act, Fish & Game Code§§ 2050-2115.5

3. Fish & Game Code§§ 1600-1616

4. National Environmental Policy Act, 42 USC§ 4321 et seq.

5. California Environmental Quality Act, Pub Res Code§ 21000 et seq.

6. Other law or regulation governing activities that affect species or their habitats.

LL. Routine Biological Activities: Biological monitoring, surveying, or other activity that does not require a take permit from the US Fish and Wildlife Service or National Oceanic and Atmospheric Administration (NOAA) Fisheries or a take permit or memorandum of understanding from the California Department of Fish and Wildlife.

MM. Sensitive receptor (air quality): Residence, school, childcare center, hospital or other health-care facility or group living quarters.

NN. Sensitive Use: A category of building use identified as a Sensitive Use in Health Code Section 3804.

OO. Sensitive receptor (noise): Any environment listed in Guidelines for Community Noise - A complete, authoritative guide on the effects of noise pollution on health (World Health Organization, Geneva, 1999). Table 4.1, for which the recommended noise levels are low, as low as possible, or a maximum LAeq[dB] <70. These include:

1. Outdoor living areas
2. Dwellings, indoors
3. Inside bedrooms
4. Outside bedrooms (window open)
5. School classrooms and pre-schools, indoors
6. Pre-school bedrooms, indoors
7. School, playground outdoor
8. Hospital, ward rooms, indoors
9. Hospitals, treatment rooms, indoors
10. Outdoors in parkland and conservation areas

PP. Service-Approved Biologist: Biologist whose activities must be approved by a state or federal agency as provided in applicable permit, license, agreement, certification, or any combination of these.

QQ. Soil: Native fill or introduced earthen fill. It does not include materials that were previously introduced as part of roadway pavement section (including asphalt concrete wearing surface, roadway base, and subbase).

RR. Stormwater Pollution Prevention Plan (SWPPP): A detailed plan that identifies potential sources of stormwater pollution, describes the practices that will be used to prevent stormwater pollution, and identifies procedures the operator will implement to comply with all requirements in the construction general permit.

SS. Take: Legal definition regarding harm to protected species as defined in 16 USC § 1532 and California Fish & Game Code § 86.

TT. Tier 2 Off-Road Emission Standards: The Tier 2 new engine emission standards in Title 13, California Code of Regulations, Section 2423(b)(1)(A) and/or Title 40, Code of Federal Regulations, Part 89.112(a).

UU. Unique Archaeological Resource is as defined in the California Environmental Quality Act statute at § 21083.2.

VV. VDECS: A verified diesel emission control strategy, designed primarily for the reduction of diesel particulate matter emissions, which has been verified by ARB pursuant to Verification Procedures, Warranty and In-Use Strategies to Control Emissions from Diesel Engines, Title 13, California Code of Regulations, Sectio ns 270 0-2710. VDECS can be verified to achieve Level 1 diesel particulate matter reductions (at least 25 percent), Level 2 diesel particulate matter reductions (at least 50 percent), or Level 3 diesel particulate matter reductions (at least 85 percent).

WW. Visible dust: Dust comprising visible emissions as defined in Bay Area Air Quality Management Board Regulation 6 – Particulate Matter.

1.4 SUBMITTALS

A. Non-Profit Entity shall submit the following to City prior to mobilization, or as otherwise stated herein:

1. The following plans and permits, with Regulatory Agency approvals wherever required:

a. Pre-construction survey for nesting birds that may be affected during construction work. (see Article 3.12 of this section)

b. Photographs of existing landscaping at the limit-of-work line(s). (see Article 3.14 of this section)

c. Tree protection fence locations and stake placement provided at least two weeks in advance of the date for any on-site review of the fence and stake placement. (see Article 3.14 of this section)

d. Written and/or photographic documentation of methods for avoidance of Environmentally Sensitive Areas. (see Article 3.11 of this section)

e. A copy of written notice, accompanied by proof of submittal, provided to the Bay Area Air Quality Management District in accordance with the requirement of the "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations," in advance of roadway construction and maintenance activities in areas soils containing naturally occurring asbestos. (see Article 3.08 of this section)

f. Prior to issuance of construction permits, and prior to commencement of each construction stage, a Project-specific construction noise control plan shall be reviewed and approved by City Planning Department and City. (see Article 3.07 of this section)

g. Prior to issuance of construction permits, Non-Profit Entity's construction emissions minimization plan (CEMP) shall be reviewed and approved by City Planning Department and City. (see Article 3.06 and 3.20 of this section for CEMP plan requirements)

h. Non-Profit Entity's initial dust control plan (DCP). (see Article 3.03 of this section)

i. SFDPH Permit and notification for removal and installation of fuel or chemical storage tanks (see Article 3.23 of this section)

j. SFDPH Well Construction/Decommissioning or Soil Borings Permit (see Article 3.23 of this section)

k. Finalized Asbestos Dust Mitigation Plan approved by BAAQMD (see Article 3.09 of this section)

l. Prior to issuance of construction permits, and prior to commencement of each construction stage, a Noise Control Plan shall be reviewed and approved by City Planning Department and City (see Article 3.07 of this section)

m. San Francisco Public Works Night-Noise Permit (see Article 3.10 of this section)

n. Prior to issuance of a construction permit, an Archeological Monitoring Plan shall be reviewed and approved by City Planning Department.

o. The issued Construction Project Site Runoff Control Permit for the project from the SFPUC with written and schematic summary of details. (see Article 3.21 of this section)

p. The issued WDID for the Stormwater Pollution Prevention Plan (SWPPP) from the Regional Water Quality Control Board with certified SWPPP inspection checklist. (see Article 3.22 of this section)

q. (Not Used)

r. Underground Storage Tank (UST) Permit (see Article 3.23 of this section)

s. Well Construction/Decommissioning or Soil Borings Permit (see Article 3.23 of this section)

2. For the subject matter expert specialist services required to be retained and provided by Non-Profit Entity to perform work in this Section, submit qualifications for the following firms and persons specified in this Section to demonstrate their capabilities and experience to ensure full compliance with this Section:

a. Qualified Acoustical Consultant: A Board-Certified Institute of Noise Control Engineering (INCE) member or other qualified consultant or engineer approved by City.

b. Qualified Arborist: The Qualified Arborist who possesses a professional certification from the International Society of Arboriculture, and/or possesses a valid C-27 and/or a C-61/D-49 license in the State of California.

c. Specialty Environmental Monitor – archaeologist: One who in the determination of City is qualified to monitor land-disturbing activities for effects to buried archaeological resources.

d. Qualified Biologist is one whose activities must be approved by a State or federal agency as provided in the applicable permit, license, agreement, certification, or any combination of these. In the event that none of these apply, the biologist must possess at a minimum a bachelor's degree in Wildlife Biology or a closely related discipline, as approved by City.

e. Qualified Historic Architect or Historic Preservation Professional: Any consultant within the "Historic Resource Consultant Pool" as established by the San Francisco Planning Department.

f. Qualified SWPPP Practitioner (QSP): Individual who is authorized by the State Water Resources Control Board (SWRCB) to develop and revise Stormwater Pollution Prevention Plans. The QSP will have prepared a minimum of five (5) SWPPPs, including at least two (2) SWPPPs for Risk Level 2 and/or LUP Type 2. All five (5) SWPPPs will be available on SMARTS and to document these QSD qualifications. The QSP will have a minimum of 4 years demonstrable experience implementing SWPPPs and performing field inspections including two years on Risk Level 2 and/or LUP Type 2 projects under the General Permit. In addition to the CASQA certification, if Non-Profit Entity's QSP is a registered Civil Engineer, registered landscape Architect, or professional hydrologist, Non-Profit Entity's QSP will also possess one of the following certifications:

1) A Certified Professional (and Investigator) in Erosion and Sediment Control (CPESC) registered through Enviro Cert International, Inc.

2) A Certified Professional in Storm Water Quality (CPSWQ) registered through Enviro Cert International, Inc.

B. Non-Profit Entity shall submit the following to City during the course of the Construction Work:

1. Non-Profit Entity shall submit the "ALERT" sheet affidavit within five business days of the start of Construction Work. (see Article 3.18 of this section)

2. (Not Used)

3. Documentation of disposal in landfill or at a commercial composting facility of plant materials potentially harboring the *Phytophthora ramorum* pathogen within one week of disposal. (see Article 3.14 of this section)

4. Certificates of Quarantine Compliance from County Agricultural Commissioner documenting that hay, straw, or mulch used on the project has been inspected and is weed free before installation of stormwater BMPs. (see Article 3.04 of this section)

5. ESCP inspection checklists transmitted on a monthly basis (see Article 3.21/3.22 of this section)

6. Notification(s) that Change Orders or other changes in construction conditions will alter the ESCP, and any additional modifications to the ESCP (see Article 3.21/3.22 of this section)

7. Analytical water-quality monitoring results (see Article 3.21-3.23 of this section)

8. Noise complaint logs (see Article 3.07 of this section).

9. Photographic documentation of signage to be posted by the Non-Profit Entity as required by this section:

   a. A sign with the telephone number and a City person to contact regarding dust complaints and the BAAQMD's phone number (see Article 3.03 of this section)

   b. Legible and visible posted signs, in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the engine-idling limit (see Article 3.06 of this section)

   c. Signs on-site pertaining to permitted construction days and hours and noise complaint procedures and who to notify in the event of a problem, with telephone numbers listed (see Article 3.07 of this section)

   d. A legible and visible sign summarizing the Construction Emissions Minimization Plan (see Article 3.06 of this section)

10. Photographic documentation of temporary fence Type ESA at the entire perimeter of ESA -- Biology as shown on the Design Documents (see Article 3.11 and 3.14 of this section).

C. Non-Profit Entity shall submit to the San Francisco Planning Department after completion of construction activities and prior to receiving a final certificate of occupancy:

1. A final construction emissions minimization plan (CEMP) report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the CEMP. (see Article 3.06 of this section)

1.5 VIOLATIONS

A. Non-Profit Entity shall be responsible for all costs incurred or necessary to ensure compliance of its operations and their performance of the Construction Work with all applicable Environmental Laws and the requirements of this section, including the following:

1. If violations of the conditions of this section result in monetary fines, these will immediately be paid by the Non-Profit Entity.

2. If Non-Profit Entity finds the Design Documents are at variance with State or Federal environmental-regulatory requirements, Non-Profit Entity shall give the City prompt written notice thereof and shall make the Design Documents consistent with State or Federal environmental-regulatory requirements.

3. If violations of the conditions of this section result in fees charged by City Planning Department, state, or federal agencies to defray the costs of document processing and review, consultation with applicants, and administration of the statutory requirement, Non-Profit Entity shall pay the fees.

4. Non-Profit Entity shall be responsible for all monetary compensation for physical damage resulting from violations of conditions of this section. If the damage is to an environmental resource, including vegetation, wildlife, natural communities, cultural resources, and water quality that is protected by Federal law (including resources subject to Federal permitting and/or subject to evaluation under the National Environmental Policy Act), State law (including resources subject to state permitting and/or to evaluation under the Environmental Quality Act), and/or City Planning Department ordinance, Non-Profit Entity shall pay for all costs associated with environmental assessment of the damage and the costs of mitigation as determined by each AHJ.

5. Non-Profit Entity shall be responsible for all costs, including labor and material costs, for any site restoration or remediation necessary in the opinion of City to address the consequences of violations of this section.

6. In the event that violations of this section result in civil action(s) against the City, Non-Profit Entity shall pay all consequent legal fees associated with the action(s) and damages assessed in the action(s) against the City.

7. The City will provide no compensation to Non-Profit Entity for Project delays or work stoppages resulting from failure by Non-Profit Entity to comply with the terms of this section.

8. Any costs associated with requirements for additional environmental training imposed by City will be borne exclusively by Non-Profit Entity.

B. City reserves the right to require additional training, issue environmental non-compliance notices, have the necessary work performed by others at Non-Profit Entity’s expense, assess non-compliance points or penalties, or to deduct or withhold all monies required therefore as permitted under the Contract Documents.

C. City and the Planning Department will inspect and monitor Non-Profit Entity’s adherence to the requirements specified herein and will report on Non-Profit Entity’s compliance. Pursuant to California Assembly Bill 3180 (chapter 1232), the City Planning Department at its own discretion will monitor Non-Profit Entity’s compliance with the requirements of this section. Said monitoring and reporting activities may include qualitative, quantitative and video observations and data collection on the impacts of noise, vibration air quality, traffic, street pavement damage, water quality, cultural resources, biological resources and hazardous materials.

1. Non-Profit Entity shall cooperate with such inspection and monitoring activities, provide access to the Work site to establish and secure monitoring stations, and make its facilities and records available to the City Planning Department for performing such monitoring.

2. The City Planning Department will issue a Non-Compliance Notice to Non-Profit Entity for any detected non-compliance with the provisions herein or of any environmentally objectionable acts and the corrective action to be taken.

3. The City Planning Department will inspect and monitor Non-Profit Entity's adherence to the requirements specified herein and will report on Non-Profit Entity's compliance.

D. If Non-Profit Entity uses off-road equipment and/or off-road engines in violation of the Clean Construction requirements set forth in Administrative Code Section 6.25 and Chapter 25 of the Environment Code, City will suffer actual damages that will be impractical or extremely difficult to determine. Accordingly, Non-Profit Entity agrees to pay City the amount of $100 per day per each piece of off-road equipment and each off-road engine used to complete Construction Work on the Project in violation of the Ordinance. Such amount will not be considered a penalty, but rather agreed monetary damages sustained by City because of Non-Profit Entity's failure to comply with the Clean Construction requirements.

1. False Representations: False representations by the Non-Profit Entity, in connection with the bidding, execution or performance of the Agreement, regarding the nature or character of the off-road equipment and/or off-road engines to be utilized or to the City Planning Department about the nature or character of the off-road equipment and/or off-road engines actually used may subject Non-Profit Entity to the consequences of noncompliance specified in Section 2510 of the Environment Code, including but not limited to the penalties prescribed therein. The assessment of penalties for noncompliance will not preclude the City Planning Department from exercising any other rights or remedies to which it is entitled.

E. Trees and plants destroyed or damaged beyond repair due to Non-Profit Entity's negligence, failure to provide adequate protection, or failure to perform recommended selective pruning will be compensated by Non-Profit Entity at no additional cost to the City.

1. Damage beyond repair that requires replacement will be determined by the Public Works Bureau of Urban Forestry.

a. If Non-Profit Entity should cause minor damage as defined by nicked tree trunks, limbs and branches or broken branches to trees or shrubs during the course of construction, Non-Profit Entity shall pay the following penalties at the beginning of each billing period:

1) Non-Profit Entity shall be penalized the sum of One Hundred dollars ($100) for the first incident which causes minor damage to trees or shrubs.

2) Non-Profit Entity shall be penalized the sum of Two Hundred dollars ($200) for the second incident which causes minor damage to trees or shrubs.

3) Non-Profit Entity shall be penalized the sum of Five Hundred dollars ($500) for the third and subsequent incidents which cause minor damage to trees or shrubs.

b. Non-Profit Entity shall replace any trees or shrubs that suffer more serious damage, including damage to roots 2-inches in diameter or larger, during construction at no additional cost to the City. The Public Works Bureau of Urban Forestry will determine the value of such replacement trees or shrubs. In addition

to Non-Profit Entity's restoration approved by the Public Works Bureau of Urban Forestry, the Non-Profit Entity shall be assessed damages for the difference in the dollar value of the damaged tree or other plant material, and the dollar value of the replacement.

c. The dollar value will be determined by the Public Works Bureau of Urban Forestry from the "Guide for Establishing Values of Trees and Other Plants," prepared by the Council of Tree and Landscape Appraisers, current edition. Damages assessed will be deducted from moneys due or that may become due to Non-Profit Entity.

d. Non-Profit Entity shall in addition be liable for the cost to the City for removing the damaged tree(s). This cost will cover 1.5 times the hourly wage of all person(s) at the site for the required hours to remove the tree(s) and haul offsite as directed by the Public Works Bureau of Urban Forestry.

2. Replacement will include the replacement plant material, transportation, installation, a 30-day maintenance period, and a one-year warranty.

3. Planting location for replacements may be different from the original location and will be determined by the Public Works Bureau of Urban Forestry.

4. Replace shrubs, ground cover and turf with plants similar in species, size and shape.

5. Replace trees with plants of same species, size and shape.

6. Replacements for trees of 2"-8" caliper will be replaced with similar sized plants; trees over 8" caliper will be 60" box size.

7. Since age and size of existing tree may prohibit replacement with same size tree, the difference in caliper between size of damaged tree and replacement of tree will be compensated by Non-Profit Entity.

8. Non-Profit Entity shall fell trees to be removed so that trees to remain are not injured.

F. Non-Profit Entity is responsible for liquidated damages of $1,600 for each day for which the presence of the Specialty Environmental Monitor – Archaeologist was requested but not cancelled within the prescribed timeframe.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL CONSTRUCTION BEST-MANAGEMENT PRACTICES

A. Non-Profit Entity shall maintain the Project Site and Construction Work areas under its control and adjacent public rights-of-way in a clean and orderly state, a safe condition, and remove all accumulations of debris and surplus materials at the end of each workday. Waste materials, trash, and debris are the property of the Non-Profit Entity.

1. Non-Profit Entity shall initiate and maintain a specific daily program to prevent the accumulation of debris at the construction site, storage and staging areas, parking areas, and along streets, roads, and haul routes in the immediate vicinity of the Project Site, to include, at a minimum:

a. Keeping all debris, hazardous/contaminated material, surplus concrete and excavated materials off the roadway and sidewalks and out of catch basins at all times.

b. Damp-sweeping all pedestrian walkways and dispose of debris around the site perimeter on a daily basis and as often as determined by City.

c. Daily inspection of traffic areas and haul routes to enforce debris and clean up requirements and daily removal of all debris from the Project Site and Construction Work areas, including haul routes, caused directly or indirectly by Non-Profit Entity's operations.

d. Ensuring that materials to be used for construction are stored in designated structures or areas by the appropriate trades. Maintain such areas or structures in a clean condition daily for the portion of the Term that commences on NTP 2 and ends on the Final Acceptance Date.

e. Maintaining hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly and dispose those types of materials in a lawful manner. Non-Profit Entity shall comply with requirements of NFPA 241 for removal of combustible waste material and debris.

f. Providing and maintaining covered containers for the deposit of debris and keep them covered.

g. Disposing of all food-related trash items (e.g., wrappers, cans, bottles, food scraps) in closed trash containers, which shall be emptied daily. Non-Profit Entity shall provide separate containers for recyclables, compostables, and landfill-bound trash. Burying or burning of trash and debris on the Project Site is not permitted.

h. In the event that Non-Profit Entity observes any rodent or insect infestation, Non-Profit Entity shall effectively control such infestation by the use of such poisons, gas traps, or insecticidal sprays as meet the written approval of the Director of Public Health (San Francisco Public Works Code, Article 17: Control of Dumps Disposing of Materials from Construction or Demolition, Section 858: Rodent and Insect Control) as verified by City.

i. Providing licensed waste material handlers to service portable sanitary facilities and trash dumpsters weekly, or more often if needed or if directed by City.

j. Controlling aerial deposition of site materials, including metals, nutrients, organics, sediment, other particulates, and trash.

k. Overseeing all cleaning of areas by trades using them and ensure that resulting accumulations are deposited in appropriate containers.

2. Non-Profit Entity is specifically prohibited from disposing of paint, petroleum products, dirty water, soil sterilants, concrete slurry or any other deleterious materials to soil.

3. Non-Profit Entity shall maintain the Project Site, equipment, fences and signs free of graffiti. As warranted, Non-Profit Entity shall remove all graffiti daily, using methods which cause no damage to the Project, Construction Work or existing facilities.

4. Non-Profit Entity shall locate site construction staging areas away from public view and on paved or previously disturbed areas to the extent feasible.

5. No firearms will be allowed within the construction limits.

6. At Final Acceptance, Non-Profit Entity shall leave the Project Site in clean and orderly condition.

3.2 STOCKPILE-MANAGEMENT BEST MANAGEMENT PRACTICES

A. Non-Profit Entity shall implement the following stockpile management best management practices to ensure no visible dust and to control stormwater discharges of stockpiled material, including all erodible stockpiled construction materials and landscape materials:

1. Locate stockpiles at a minimum of 50 yards away from concentrated flows of storm water, drainage courses and inlets.

2. Stockpiles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.

3. Any excavated soils should be removed from the Project Site by the end of the day, if in the opinion of City, this can be accomplished without resorting to extraordinary means and measures.

4. Stockpiles/storage piles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and/or soil that will remain inactive for more than seven (7) days will be covered with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and braced it down, or use other equivalent soil stabilization techniques as approved by City.

5. Non-Profit Entity shall monitor the National Weather Service forecast daily for forecasts of a rain event. When a rain event is forecasted for the Project area by the National Weather Service with at least a 50 percent chance of occurrence within the following 72 hours, Non-Profit Entity shall cover stockpiles with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down.

6. During the rainy season, Non-Profit Entity shall also implement the following best management practices:

   a. Stockpiles shall be protected with a temporary linear sediment barrier berm prior to the onset of precipitation. Surround stockpiled material with fiber rolls, gravel sediment barrier, silt fence or other runoff controls as approved by the City Planning Department.

   b. Use inlet controls such as block gravel sediment barriers when stockpiles are proximate to catchbasins. Silt fencing will be additionally installed at the foot of the slope around the entire perimeter of stockpiled soil.

   c. Where necessary, V-ditches and silt traps/sediment traps will be installed at the perimeters of stockpiles to collect runoff to allow flow to continue to storm drain inlets.

3.3 DUST-CONTROL BEST MANAGEMENT PRACTICES

A. Non-Profit Entity shall ensure no visible dust is generated through construction.

1. Non-Profit Entity is responsible for taking all reasonable measures to furnish all labor, equipment, and means required to carry out effective measures whenever and as often as necessary to prevent its operation from producing dust in amounts damaging to surrounding properties or causing a nuisance to businesses and local residents.

2. Non-Profit Entity shall post a publicly visible sign with the telephone number and person to contact at Non-Profit Entity regarding dust complaints. The BAAQMD's phone number will also be visible to ensure compliance with applicable regulations.

B. Non-Profit Entity shall not engage in any construction or grading operation on property unless all the following dust mitigation measures are initiated at the start and maintained throughout the duration of the construction or grading activity:

1. Vehicle and equipment maintenance:

a. Non-Profit Entity shall maintain tire inflation to the manufacturers' inflation specifications.

b. Non-Profit Entity shall limit vehicle speed limit on unpaved roads to 15 miles per hour (mph), or less if required to minimize dust emissions.

c. Non-Profit Entity shall ensure that equipment, trucks and tires are washed down before moving from the active areas on to a paved public road to minimize deposition of dust-causing materials.

d. Non-Profit Entity shall load haul trucks, hauling debris, soils, sand or other such materials so that the material does not extend above the walls or back of the truck bed. Non-Profit Entity shall wet each load before covering and shall tightly cover the surface of each load before the haul truck leaves the loading area.

1) The Non-Profit Entity shall cover and line the truck bed ("burrito wrap") with 10mil HDPE for all truckloads of soils containing naturally-occurring asbestos.

2. Limitations on grinding, crushing, and ground disturbance:

a. Non-Profit Entity shall plan and execute the work in such manner as to ensure that the total of soils-disturbing construction activities never amount to one half acre of area at any one time unless otherwise directed by City.

b. Non-Profit Entity shall terminate surface excavation and grading activities when wind speeds exceed 25 miles per hour.

c. Non-Profit Entity cannot perform screening or crushing operations without the appropriate BAAQMD and Cal-EPA/DTSC permits for these activities.

3. Non-Profit Entity shall ensure that all borrow areas are protected with appropriate erosion control measures to the satisfaction of City.

4. Use of water for dust control:

a. Whenever feasible, Non-Profit Entity shall use reclaimed water for dust control activities.

b. Non-Profit Entity shall treat and amend all water for dust control with biodegradable, non-polluting, non-toxic dust control agent.

c. Non-Profit Entity shall conduct mist or spraying activity in such a way as to prevent puddling or generation of runoff.

d. Prior to any ground disturbance, Non-Profit Entity shall apply enough water to the area to be disturbed to prevent visible emissions from crossing the Project Site boundaries.

e. Non-Profit Entity shall perform continuous water spraying during dust generating activities, including but not limited to demolition, excavation, and earthmoving.

f. Non-Profit Entity shall keep areas being graded or excavated wetted to the extent required to prevent visible emissions from crossing the Project Site and property line.

g. Non-Profit Entity shall wet all exposed soil surfaces at least three times daily during dry weather or more frequently if dust is blowing or if required by City.

h. Non-Profit Entity shall ensure that a water truck and/or water buffalo always is readily available at the Project Site. Localized dust controls such as water hoses shall be pre-connected to a water source or water canisters to immediately control visible dust emissions at each active work area.

i. Non-Profit Entity shall ensure that water trucks are equipped with hand-held hoses. Hoses shall be equipped with micro-misters and micro-foggers.

j. In wet areas, Non-Profit Entity shall ensure that caution signs are posted to prevent slipping hazards.

5. Non-Profit Entity shall provide dust control for disturbed surface areas to include one or more of the following so as to prevent dust from becoming airborne:

   a. Keeping the surface wetted so that no visible dust is produced.

   b. Establishment and maintenance of surface crusting.

   c. Application of chemical dust suppressants or chemical stabilizers according to the manufacturers' recommendations as needed.

   d. Covering with tarp(s) or vegetative cover.

   e. Installation of wind barriers across open areas.

6. Non-Profit Entity shall implement the following for management of excavated material and demolition debris at the Project Site:

   a. Minimize to the extent feasible the amount of excavated material or demolition wastes stored at the site.

   b. Minimize the amount of excavated materials stored at the site.

   c. Remove all demolition debris from the site no later than the end of each workday.

7. Non-Profit Entity shall clean up spillage on City streets, whether directly or indirectly caused by Non-Profit Entity's operations.

8. Non-Profit Entity shall eliminate track-out from the construction site and, at a minimum shall comply with the following:

   a. Non-Profit Entity shall immediately remove any visible track-out of asphalt, soil, gravel, debris and dirt from a paved public road at any location where vehicles enter and exit the site.

   b. All visible mud or dirt track-out from areas of land disturbance onto adjacent City streets shall be removed using wet power vacuum street sweepers at least once per day.

c. The use of dry power sweeping is prohibited.

d. Non-Profit Entity shall install one or more of the following track-out prevention measures at all entry and exit points. These track-out controls are to be cleaned, maintained and replaced to keep their use effective for the project duration.

1) A gravel pad designed using good engineering practices to clean the tires of exiting vehicles.

2) A metal griddle (rumble plate) tire shaker.

3) A wheel wash system.

4) Pavement extending for not less than fifty (50) consecutive feet from the intersection with the paved public road; or

5) Any other measure as effective as the measures listed above as approved by City.

9. Non-Profit Entity shall implement the following regimen of sweeping:

a. Keep the entire site of the work and adjacent areas (including sidewalks, 500 consecutive feet in all directions of intersections, walkways and roadways) continuously free of dirt and dust by wet sweeping at least three times per shift, including at the end of the workday. Use a wet sweeping or a HEPA filter equipped vacuum device on at all entry and exit points more frequently if needed to keep free of dirt and dust.

b. Clean visible track-out on the paved public road using wet sweeping or a HEPA filter equipped vacuum device.

c. Always maintain a regenerative air or high efficiency vacuum sweeper-vehicle on the Project Site. City will evaluate the effectiveness of Non-Profit Entity's vacuum sweeper-vehicle and, if necessary, will require Non-Profit Entity to provide a more powerful and effective sweeper.

10. When directed by City, Non-Profit Entity shall use dust enclosures, curtains, and dust collectors to control dust.

C. Prior to grading or excavating an approved Site-Specific Dust Control Plan (DCP) under the Dust Control Ordinance (San Francisco Health Code Article 22B) is required.

1. Non-Profit Entity shall incorporate in its Project Schedule the time it will take for the SFDPH to review and approve the DCP application and the DCP. Non-Profit Entity shall take into account and incorporate in its Project Schedule the time it will take to implement the provisions of the DCP.

2. Non-Profit Entity shall submit a completed application and pay the associated fees to the SFDPH. Non-Profit Entity may not commence Construction Work, demolition, excavation, grading, foundation work, or other permitted activities until Non-Profit Entity has submitted to City and City Planning Department a copy of SFDPH director's written approval of the DCP, the plan provisions have been implemented, and the City has subsequently given Non-Profit Entity permission to proceed. All provisions of the approved plan become the responsibility of the Non-Profit Entity.

3. Non-Profit Entity shall interpret as mandatory all guidance in the Department of Public Health's handout "Monitoring Guidelines for SFHC Article 22B" in the event that the Plan requires monitoring.

3.4 STANDARD STORMWATER BEST-MANAGEMENT PRACTICES

A. Unless otherwise superseded by the terms of the Erosion and Sediment Control Plan, Non-Profit Entity shall design, install, and maintain effective Project-specific Project Site sediment controls to minimize the discharge of pollutants utilizing site-specific BMPs. These BMPs include but are not limited to the following:

1. Immediately initiate stabilization for disturbed areas whenever earth disturbance has permanently ceased on any portion of the site, or temporarily ceased on any portion of the site where earth disturbance will not resume for a period exceeding 14 calendar days.

2. Non-Profit Entity may stabilize soil exposed soil using bonded-fiber matrices, hydromulches, spray tackifiers, or other land-applied products: Non-Profit Entity shall apply the product according to the manufacturer's instructions and guidance; and apply the product according to the manufacturer's guidance to allow for ample cure time and to prevent treatment chemicals from being transported by runoff.

3. Non-Profit Entity may use Erosion Control Blankets to control to stabilize disturbed and exposed soil if exposed soil generates visible runoff.

B. Non-Profit Entity shall install BMPs, including temporary sediment barriers, soil stabilization measures, and sediment basins, sufficient to control erosion and subsequent sediment discharges from the Project Site, at locations with potential for erosion and as otherwise directed by City. These include all exposed soils and construction site entrances and exits.

1. Non-Profit Entity shall design BMPs according to the California Stormwater Quality Association's (CASQA) current Construction BMP Guidance Handbook and utilize outlet structures that withdraw water from the surface, unless infeasible.

2. Sandbags shall be stockpiled on site and placed there at intervals as directed by City. After rain events, Non-Profit Entity shall check for and remove sediment trapped by sandbags at staging area. Non-Profit Entity shall replace sandbags if deterioration is evident.

3. BMPs shall be relocated as necessary for construction operations, with prior written approval from City.

4. BMPs shall be installed so as not to compromise safety of vehicles operating in roadways adjacent to erosion control BMPs.

5. Non-Profit Entity shall remove the temporary BMPs when permanent measures are in place.

C. Non-Profit Entity shall contain packaged landscape materials (e.g., fertilizers) when they are not being actively used, and apply erodible landscape material at quantities and rates according to manufacturer recommendations or based on written specifications by knowledgeable and experienced field personnel. Non-Profit Entity shall discontinue the application of any erodible landscape material at least 2 days before a forecasted precipitation event.

D. During the rainy season, Non-Profit Entity shall inspect all erosion control measures daily and after each storm. Any damaged BMP shall be repaired at the close of each day and whenever rain is forecast. During the rainy season, erosion control BMPs (with the exception of sprayed products) shall be available on-site, or at a nearby location (e.g., common lay-down yard), year-round with trained persons able to deploy the product.

E. Non-Profit Entity shall conduct a pre-rain-event inspection within 72 hours prior to any forecasted rain event. Precipitation forecast information shall be obtained from the National Weather Service Forecast Office (e.g., by entering the zip code of the project's location at https://www.weather.gov/) and shall be included as part of the inspection checklist weather information. If extended forecast precipitation data (greater than three days) is available from the National Weather Service, the pre- precipitation event inspection may be done up to 120 hours in advance. During periods when storms are forecast, Non-Profit Entity shall:

1. Inspect all stormwater drainage areas to identify leaks, spills, or uncontrolled pollutant sources and when necessary, implement appropriate corrective actions to control pollutant sources.

2. Ensure that excavated soils are not be placed in streets or on paved area, and all paved areas are to be kept clear of earth material and debris.

3. Remove any excavated soils from the Project Site by the end of the day if feasible.

4. Clean and skim drainages and detention basins daily.

F. Non-Profit Entity shall divert run-on water flowing onto the construction site from off-site areas to prevent its contributing to the construction site's stormwater. Installation of run-on diversion shall occur prior to entering an area affected by construction activity. Non-Profit Entity shall ensure that run-on flow diversion is conveyed through or around the construction activity in plastic pipe or an engineered conveyance channel in a manner that will not cause erosion due to flow diversion.

G. Non-Profit Entity shall secure and contain concrete washout areas and other washout areas that may contain additional pollutants to prevent discharge into the underlying soil and onto the surrounding areas and into the sewerage system. Non-Profit Entity shall ensure that wash waters from equipment and vehicle washing, wheel wash water, masonry wash waters, and other wash waters are captured and treated prior to discharge or disposal at a permitted facility that can accept that waste. Washout areas shall be covered prior to and during a precipitation event.

H. Non-Profit Entity shall remove sediment and trash accumulated in drainages or detention basins as soon as possible. In addition, oil and material floating on water surface must be skimmed weekly and the debris properly disposed of. Non-Profit Entity shall cover waste disposal containers at the end of every business day and during a precipitation event.

I. Non-Profit Entity shall minimize soil compaction in areas other than where the intended function of a specific area dictates that it be compacted.

J. Non-Profit Entity shall implement the following materials selection and handling BMPs to the extent feasible:

1. Minimize exposure of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) to precipitation.

2. Identify and protect the products used and/or expected to be used and the end products that are produced and/or expected to be produced from exposure to stormwater. Products do not include materials and equipment that are designed to be outdoors and exposed to environmental conditions (e.g., poles, equipment pads, cabinets, conductors, insulators, bricks, roofing, and siding).

3. Implement BMPs to control the discharge of plastic materials and limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist. Non-Profit Entity shall consider the use of plastic materials resistant to solar degradation where plastic materials are deemed necessary.

3.5 SPILL AND LEAK CONTROL BEST MANAGEMENT PRACTICES

A. Non-Profit Entity shall assign and train spill-response personnel, who will address spills and leaks immediately and dispose of leaked materials properly in accordance with the law.

B. Non-Profit Entity shall provide spill cleanup material on site to adsorb, remove and contain any spill or releases from leaving the active work area and entering into any storm drain or sewer inlet. Non-Profit Entity shall maintain a fully stocked spill kit(s) at the Project Site for immediate deployment. Non-Profit Entity shall keep enough spill cleanup material with vehicles and equipment to handle potential spills. Spill cleanup equipment will include absorbent socks, over pack drums, personal protective equipment, shovel, labels, valves, valve charts, valve wrenches to shut off water supply, etc.

C. Non-Profit Entity shall ensure On-site vehicles are periodically monitored for leaks during the workday.

D. Non-Profit Entity shall store inactive equipment with drip pans to contain any fluid leaks. Drip pans containing oil must be drained into waste oil drums on a regular basis.

E. Non-Profit Entity shall ensure that all hazardous material stored on-site, including but not limited to lubrication oil, hydraulic fluids, waste oils, fuels, solvents and hazardous or toxic wastes, is stored in watertight secondary containment or in a completely enclosed storage area. The containment must be covered with temporary tarps to prevent storm water contact.

F. Non-Profit Entity shall provide containment (e.g., secondary containment) of sanitation facilities (e.g., portable toilets) to prevent discharges of pollutants.

G. Non-Profit Entity shall dispose of spent cleanup materials at a California-permitted waste-disposal facility. Leaked materials that constitute hazardous waste shall be disposed of in accordance with applicable hazardous materials specifications.

H. Non-Profit Entity shall ensure that containers remain closed at all times except when transferring contents. Heavy containers (in excess of 60 lb.) of oil or hazardous material shall not be moved by a single unassisted worker unless the worker employs a drum dolly.

I. Non-Profit Entity shall use funnels, pumps with closed hose systems, or other means to prevent spills while transferring material from large containers to small ones. Pumps in operation shall not be left unattended.

J. Non-Profit Entity shall place all equipment or vehicles which are to be fueled in a designated area away from catchbasins fitted with functional, appropriate leak-containment BMPs. Non-Profit Entity shall (i) maintain clean fuel-dispensing area(s) using dry cleanup methods (sweeping for removal of litter and debris or use of rags and absorbents for leaks and spills), (ii) place drip pans or other containment beneath each connection point to capture all spills and drips, (iii) cover storm drains in the vicinity during transfer and (iv) maintain ample spill clean-up equipment adjacent to the fueling area.

K. Non-Profit Entity shall conduct an end-of-day inspection of the Work area for leaks, spills or other discharges.

L. Non-Profit Entity's designated Project Safety Officer shall immediately be alerted to any spill occurring in the Work area. It is the responsibility of the Project Safety Officer to direct the cleanup activities and contact City immediately in accordance with the requirements of the Contract Documents .

M. Non-Profit Entity is responsible for recording all steps taken to control spills in the field notes/daily log.

3.6 EMISSIONS-CONTROL BEST MANAGEMENT PRACTICES

A. Non-Profit Entity shall comply with the following engine requirements:

1. All off-road equipment greater than or equal to 25 horsepower shall have engines that meet U.S. EPA or California Air Resource Board (CARB) Tier 4 Final off-road emission standards. Non-Profit Entity shall register and obtain an Equipment Identification Number (EIN) per vehicle/equipment over 25 horsepower with the California Air Resources Board.

2. Where access to alternative sources of power are available, portable diesel engines shall be prohibited. If access to alternative sources of power is infeasible, portable diesel engineers shall meet the requirements of subsection 3.6.A.1 above.

B. Non-Profit Entity may pursue the following waiver:

1. City Planning Department may waive the equipment requirements of subsection 3.6.A.1 if a particular piece of off-road Tier 4 Final equipment is not regionally available, not technically feasible, or would not produce desired emissions reduction due to expected operating modes. In granting the waiver, Non-Profit Entity must demonstrate with substantial evidence that the project construction does not exceed the BAAQMD threshold for NOx (54 lbs/day) by resulting in a net increase of average daily NOx emissions greater than 4 pounds per day. The Non-Profit Entity must also demonstrate with substantial evidence that the overall combined construction and operational excess cancer risk does not exceed 7 per 1 million persons exposed at nearby sensitive receptors.

C. Non-Profit Entity shall ensure that all equipment is tuned and maintained in accordance with the manufacturer's specifications. Non-Profit Entity shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.

D. Non-Profit Entity shall limit the hours of operation of heavy-duty equipment and/or amount of equipment in use to what is needed.

E. Non-Profit Entity shall prohibit idling of motors when equipment is not in use or when trucks are waiting in queues. The idling time of all construction equipment used at the site shall not exceed 5 minutes.

1. Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes at any location, except as allowed for in applicable State regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). If such equipment is within 100 feet of a school zone idling times shall be limited to 30 consecutive seconds.

2. Non-Profit Entity shall post legible and visible signs, in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the idling limit.

F. Non-Profit Entity's Construction Emissions Minimization Plan (CEMP) requirements include:

1. Before starting onsite construction activities, Non-Profit Entity shall submit a CEMP to City Planning Department for review and approval. The CEMP shall state, in reasonable detail, how Non-Profit Entity will meet the requirements of section 3.6 of this specification.

2. The CEMP shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description may include, but is not limited to equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and hours of operation.

3. Non-Profit Entity shall ensure that all provisions of the approved CEMP are incorporated into the Project Agreement Technical Requirements and are followed in daily construction activities. The CEMP shall include a certification statement that Non-Profit Entity agrees to comply fully with the CEMP.

4. Non-Profit Entity shall make the CEMP available to the public for review onsite during working hours. Non-Profit Entity shall post at the construction site a legible and visible sign summarizing CEMP. The sign shall also state that the public may ask to inspect the CEMP for the project at any time during working hours and shall explain how to request to inspect the CEMP. Non-Profit Entity shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way.

G. Non-Profit Entity shall perform the following monitoring:

1. After start of construction activities, Non-Profit Entity shall submit biannual reports to City Planning Department documenting compliance with the Construction Emissions Minimization Plan.

3.7 CONSTRUCTION NOISE CONTROL BEST MANAGEMENT PRACTICES

A. Prior to issuance of any demolition permit or building permit, Non-Profit Entity shall submit a project-specific construction noise control plan to City Planning Department for review and approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the design-build contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of construction activities not resulting in a noise level greater than 90 dBA at noise-sensitive receptors and 10 dBA above the ambient noise level at noise-sensitive receptors. Non-Profit Entity shall ensure that requirements of the approved construction noise control plan are incorporated into the Project Agreement Technical Requirements and followed during construction activities. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The construction noise control plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels.

1. Use construction equipment that is in good working order, and inspect mufflers for proper functionality; and

2. Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engineer enclosures); and

3. Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors; and

4. Prohibit the idling of inactive construction equipment for more than five minutes; and

5. Locate stationary noise sources (such as compressors) as far from nearby noise-sensitive receptors as possible (including future onsite noise-sensitive receptors at the Phase 2 Bryant Street housing development under phased construction scenarios for the refined project under the Final EIR), muffle such noise sources, and construct barriers around such sources and/or the construction site; and

6. Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors (including future onsite noise-sensitive receptors at the Phase 2 Bryant Street housing development under phased construction scenarios for the refined project under the Final EIR); and

7. Enclose or shield stationary noise sources from neighboring noise-sensitive properties (including the future onsite noise-sensitive receptors at the Phase 2 Bryant Street housing development under phased construction scenarios for the refined project under the Final EIR) with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and

8. Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the perimeter of active construction areas or phases. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise.

9. Under the phased construction scenarios for the refined project as defined in the Final EIR, develop strategies to reduce exposure to construction noise in coordination with future onsite noise-sensitive receptors at the Phase 2 Bryant Street Housing development under phased construction scenarios for the refined project under the Final EIR. Some options to reduce noise include limiting noise to Phase 2 Bryant Street housing development receptors by delaying or limiting occupancy in units closest to the construction zone or notifying receptors of loud construction periods. These options should be explored as part of the noise control plan prepared by a qualified noise consultant and the design-build contractor.

B. The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures, and monitoring construction noise levels, including the following requirements, procedures, and corrective measures:

1. Designate an on-site construction noise manager for the project; and

2. Notify neighboring noise-sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g. pier prilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise-sensitive receptors) about the estimated duration of the activity (including future onsite noise-sensitive receptors at the Phase 2 Bryant Street housing development under the phased construction scenarios for the refined project under the Final EIR); and

3. Post a sign onsite describing noise complaint procedures and a complaint hotline number that shall always be answered during construction, and provide to City and City Planning Department photographic documentation that the signage has been posted; and

4. Implement a procedure for documenting all noise complaints received in a noise complaint log which shall be kept up to date and available to City upon request. At a minimum, the following information will be documented in the log: date of complaint, contact information for person providing a noise complaint, reason for the complaint, action taken and/or resolution; and

5. Notify City within 48 hours of each noise complaint with an explanation of the corrective measures taken, if applicable, and notify City Planning Department within one week of receiving a complaint; and

6. Establish a list of measures for responding to and tracking complaints pertaining to construction noise, taking all reasonable steps to resolve the complaint and the source of the noise impact, including providing additional monitoring as required, and modifying or implementing better attenuation controls for any construction equipment or activities that generated the excessive noise levels. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, church, hotels and motels, and sensitive wildlife habitat); and

7. Non-Profit Entity shall subsequently perform further periodic inspections to confirm that the modified or improved noise control minimization measures are effective; and

8. Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures.

C. The construction noise control plan shall include the following additional measures in the event of pile-driving activities:

1. When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement “quiet” pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions;

2. Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and

3. Conduct noise monitoring (measurements) before, during, and after the pile-driving activity.

D. Notwithstanding the requirements stated in section 3.06.A and 3.06.B, before the onset of Construction Work, Non-Profit Entity shall implement minimization controls to ensure that the maximum noise level from any individual article of powered construction equipment other than to impact tools and equipment will not be greater than 80 dB(A) at 100 feet, to the greatest extent feasible.

1. Non-Profit Entity shall notify neighbors and occupants within 300 feet of the Project construction area at least 30 days in advance of impact-related noise-generating activities about the expected noise levels and their estimated duration.

2. Non-Profit Entity shall implement the following controls with respect to the use of all impact equipment:

a. Noise from impact tools may not exceed 90 dBA 1-hour L_{eq} at the surface property line nearest to ongoing construction activities.

b. Impact tools and equipment shall have intake and exhaust mufflers recommended by the manufacturers thereof and approved by the Director of San Francisco Public Works or the Director of Building Inspection as best accomplishing maximum noise attenuation.

c. Pavement breakers, jackhammers, and similar impact equipment shall be equipped with acoustically attenuating shields and shrouds and/or jackets as recommended by the manufacturers thereof and approved by the City Planning Department.

d. Use of impact tools shall be restricted to the daytime construction hours of 8:00 a.m. to 3:30 p.m.

e. Non-Profit Entity shall use sonic or vibratory sheet pile drivers, rather than impact sheet pile drivers. Where the use of vibratory sheet pile drivers cannot be avoided, properly fit impact sheet pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer.

f. Non-Profit Entity shall limit phases of construction that require daily use of impact equipment to periods of no more than 10 consecutive days.

3. If, before construction mobilization, Non-Profit Entity determines that these standards and/ or one or more of these controls cannot be applied, Non-Profit Entity shall immediately alert the City Planning Department. If directed by the City Planning Department, Non-Profit Entity must revise the project-specific construction noise control plan and resubmit for City Planning Department review and approval. Non-Profit Entity's proposed revisions to the construction noise control plan must be prepared by a qualified acoustical engineer and demonstrate to the City Planning Department what alternative measures will be taken to reduce the impacts of construction noise to the extent feasible. The revised construction noise control plan must be approved by the City Planning Department and Non-Profit Entity shall enact all of its provisions before Non-Profit Entity commences Construction Work that may exceed the standards or omit the controls required above.

a. If, as determined by City, the requirement for the construction noise control plan arises during the course of construction, such as through Non-Profit Entity's exceedances of these noise standards and/or by Non-Profit Entity's inability to apply one or more of these controls, Non-Profit Entity shall be directed by City to cease the use of equipment that is responsible for exceedances. Non-Profit Entity may resume the use of such equipment after the construction noise control plan is approved and all its provisions are enacted. City will not be responsible for any financial consequences to Non-Profit Entity of such work slowdowns or stoppages.

E. Unless otherwise stated herein, Non-Profit Entity shall implement sufficient best-available control techniques to ensure that noise generated by each piece of powered construction equipment when in use is below the 80 dB(A) at 100 feet threshold. These may include but are not limited to any combination of the following:

1. The use of mufflers, intake silencers, ducts, engine enclosures and acoustic attenuating shields, barriers, or shrouds for construction equipment and trucks.

2. The use of hydraulic or electric-powered in preference to diesel-powered construction equipment.

3. The use of drilling equipment in preference to impact equipment whenever feasible.

4. Installation of temporary improvements to the noise-reduction capability of adjacent buildings.

5. Erection of temporary plywood noise barriers around construction sites, and construction of temporary or permanent noise barriers around staging areas, shafts, and flow-control construction areas.

    a. Where temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise.

F. Non-Profit Entity shall locate stationary noise sources (e.g., ventilation fans, generators, dewatering pumps) as far away from the perimeter of the construction area as feasible and away from residential and commercial uses. Non-Profit Entity shall enclose equipment such as large compressors, generators, and large dewatering pumps at a minimum in 1-inch-thick plywood sheds. Openings in these enclosures shall face inwards towards the center of the Project-construction area.

G. Non-Profit Entity shall direct all truck traffic to designated truck routes that avoid areas that are predominantly residential areas to the extent feasible.

H. The Non-Profit Entity will periodically monitor the effectiveness of noise attenuation measures by taking noise measurements. In the event that noise exceedances are recorded, Non-Profit Entity shall modify existing or implement better attenuation controls for any construction equipment or activities that generated the excessive noise levels. Non-Profit Entity shall subsequently perform further periodic inspections and monitoring to confirm that the modified noise control minimization measures are effective.

    1. When directed by City, Non-Profit Entity shall submit revisions to the approved construction noise control plan for review and written approval if, in the sole determination of City, modified noise control minimization measures are not effective. In the event that revisions to the construction noise control plan are required, Non-Profit Entity shall cease the use of equipment that is responsible for exceedances. Non-Profit Entity may resume the use of such equipment after the revised construction noise control plan is approved and all its provisions are enacted. City will not be responsible for any financial consequences to Non-Profit Entity of such work slowdowns or stoppages.

3.8 NATURALLY OCCURRING ASBESTOS (NOA)

A. For all work in any areas of serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA), as known through USGS map, soil assessment, soil sampling or other information, Non-Profit Entity shall adhere to the provisions of California Code of Regulations§ 93105, Title 17, California Code of Regulations - Asbestos Airborne Toxic Control Measure (ATCM) for Construction and Grading Operations and CCR Title 8, Section 1529, Asbestos.

B. If Non-Profit Entity disturbs, grades or excavates more than one acre (43560 sq. ft.) of area mapped as containing NOA, such Construction Work may not be implemented without first obtaining written approval by BAAQMD of an Asbestos Dust Mitigation Plan and written approval of City.

    1. In the event that a Project Change Order results in an exceedance of this threshold, no Project ground disturbance, grading, or excavation may occur without first obtaining

written approval by BAAQMD of Asbestos Dust Mitigation Plan (ADMP), implementation of the ADMP, and written approval of City.

C. At no cost to the City, Non-Profit Entity shall hire an experienced Certified Industrial Hygienist (CIH) to serve as Cal/OSHA Asbestos Class II asbestos operations Asbestos Competent Person (ACP).

1. The ACP shall train Non-Profit Entity's workers and tradespeople who may come into contact with serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) for Class II work activity level as per the Cal/OSHA standard 8 CCR § 1529.

2. The ACP shall be present at the Work site in compliance with requirements specified in the Cal/OSHA standard 8 CCR § 1529, and whenever Construction Work is conducted where serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) is present.

3. The ACP shall enforce the dust-control provisions of these specifications.

D. Before work in areas of NOA shown in the Design Documents that intersect with areas of roadway construction and maintenance which require the disturbance of soils by construction and grading, Non-Profit Entity shall submit the Bay Area Air Quality Management District's (BAAMQD) "Notification Form for Road Construction and Maintenance Operations" to BAAMQD fourteen business days in advance of land disturbance of soils containing NOA.

E. Unanticipated Discovery of Naturally Occurring Asbestos (NOA):

1. If NOA is unexpectedly encountered after the project has started, Non-Profit Entity shall immediately notify City and shall:

a. Submit a notification to the BAAQMD no later than the next business day using the Asbestos Dust Mitigation Plan (ADMP) Discovery Notification Form found at the link below: https://www.baaqmd.gov/~/media/Files/Compliance%20and%20Enforcement/Asbestos/admp_discovery_application.ashx?la=en, and followed by email to the BAAQMD, and at the same time notify City with the same details.

b. Non-Profit Entity shall immediately implement the ADMP provisions and may continue Construction Work with the written approval from City.

c. Any measures imposed by the BAAQMD pursuant to the submittal of the ADMP Discovery Notification will be provided to City and implemented by Non-Profit Entity within 24 hours of receipt.

3.9 ASBESTOS DUST MITIGATION PLAN

A. If Non-Profit Entity by its means and methods disturbs, grades or excavates more than one acre (43560 sq. ft.) and the site is known through USGS map assessment, soil sampling or other information indicating that the Project will be disturbing NOA, as shown in the Design Documents, the following indicated control, administrative, reporting and submittal requirements will apply.

1. Sixty days (60) days before commencement of grading, and excavation activities, Non-Profit Entity shall submit to City an Asbestos Dust Mitigation Plan (ADMP) for review.

2. Upon City's written approval, Non-Profit Entity shall submit the ADMP, the ADMP application, and the BAAQMD Regulation 3 Fees to the APCO for its review and approval. Non-Profit Entity shall furnish all information required by the BAAQMD to

amend and finalize the ADMP. Non-Profit Entity shall not be reimbursed for the BAAQMD Regulation 3 Fees.

3. No soil disturbance, construction or grading shall commence unless the ADMP and its amendments is approved by the BAAQMD. Prior to commencement of any grading and excavation activities, Non-Profit Entity shall implement the ADMP. Non-Profit Entity shall implement and maintain the ADMP from the commencement of the Construction Work through the duration of the Project Construction Work.

4. Non-Profit Entity at its own cost shall furnish all labor, equipment, and means required to prepare and implement the ADMP, conduct the ambient and perimeter air monitoring as required by the BAAQMD's terms of approval of the ADMP and California Code of Regulations, Title 17, Section 93105. Non-Profit Entity shall incorporate in its Project Schedule the time it will take for the BAAMQD to review and approve the ADMP application and the ADMP. Non-Profit Entity shall take into account and incorporate in its Project Schedule the time it will take for the BAAMQD to review the storage and staging locations, etc., for the final approval of the ADMP. Any fines imposed on the City by the BAAQMD as a result of Non-Profit Entity's negligence will be passed on to Non-Profit Entity.

5. Non-Profit Entity, at no cost to the City, will perform perimeter air monitoring for asbestos at the Project Site during its soil disturbance activities for the duration of the Project. This will be in accordance with the approved ADMP. Non-Profit Entity shall submit all record keeping and reporting to the BAAQMD on a weekly basis or as per a reporting schedule requested by BAAQMD.

3.10 NIGHT WORK

A. If Non-Profit Entity is to perform any part of the Work between the hours of 8 p.m. and 7 a.m. or on weekends or holidays, subject to any and all special permits and authorizations, Non-Profit Entity shall comply with all of the following:

1. Lighting Controls

   a. Lighting systems with flood, spot, or stadium type luminaires shall be aimed downward at the Work and rotated outward no greater than 30 degrees from nadir (straight down).

   b. When, in the opinion of City, the lighting is disturbing adjoining property, Non-Profit Entity shall modify the lighting arrangement or add hardware to shield the light trespass.

   c. When working adjacent to marine environments (the Pacific Ocean, San Francisco Bay, tidal inlets of the Bay), artificial lighting of the construction area during nighttime hours shall be minimized to the maximum extent practicable without substantial impairment of workers' safety and working conditions. At least two weeks prior to the commencement of Construction Work, Non-Profit Entity shall submit a lighting plan demonstrating that all lighting will be directed away from the marine environment and natural areas for written approval by City.

2. Noise controls:

   a. Non-Profit Entity must obtain and comply with a noise permit pursuant to Police Code Section 2908 prior to starting any Construction Work between the hours of 8 p.m. and 7 a.m. Non-Profit Entity must apply for noise permits at least 15 working days in advance of night (i.e., between 8:00 p.m. and 7:00 a.m.), weekend, and holiday work. The requirements of the Contract Documents, including safety

requirements, apply for all night, weekend, and holiday Work performed. The noise permit will be obtained from and approved by Bureau of Street Use and Mapping, 49 South Van Ness Ave, Suite 3rd Floor, San Francisco, CA 94103.

b. Non-Profit Entity shall reduce the use of vehicles for night Construction Work that are legally required to be equipped with backing warning alarms to the extent feasible for night Construction Work, and Non-Profit Entity shall implement administrative controls as defined in the California Code of Regulations, Title 8 Sec. 1592 for worker protection for backing movements by other vehicles.

c. Non-Profit Entity shall not perform Construction Work between the hours of 8:00 p.m. and 7:00 a.m. of the following day if the noise level created thereby is in excess of the ambient noise level by 5 dBA at the nearest property line, unless approved by City and unless a noise permit for such work has been obtained pursuant to the Police Code Section 2908.

3.11 ENVIRONMENTALLY SENSITIVE AREA (ESA)

A. Non-Profit Entity shall be aware of and protect environmentally sensitive areas (ESAs)within or near construction limits where access is prohibited or limited in order to protect environmental resources.

1. Non-Profit Entity shall implement Caltrans temporary fence Type ESA at the entire perimeter of any ESA -- Biology as shown in the Contract Documents.

2. Non-Profit Entity shall prevent personnel and equipment from entering the ESA.

3. Non-Profit Entity shall coordinate methods for avoidance intrusion into ESAs with City and provide written and photographic documentation of these methods used in the field before NTP2.

3.12 BIRD PROTECTION

A. Non-Profit Entity shall perform all Construction Work in a manner that complies with the Migratory Bird Treaty Act (MBTA) and California Department of Fish and Game Code Section 3503, 3503.5, and 3513 (in addition to the Federal Endangered Species Act and California Endangered Species Act for listed birds).

1. Non-Profit Entity is advised that is unlawful under the California Fish and Game Code at §3503 to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by California Code. Non-Profit Entity is advised that it is unlawful under the California Fish and Game Code at §3503.5 to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by California Code.

B. Where Construction Work begins in advance of the bird-nesting season (February 15 through August 31), Non-Profit Entity shall be responsible for passively deterring birds from establishing active nests within the work area during construction, including on equipment. Methods for doing so may include installing bird deterrents (e.g., flash tape, false eyes, and audio deterrents), covering equipment with bird netting when not in use, and minimizing onsite attractants like slash or debris piles. Deterrents will be installed during the non-nesting season (September to February 14), unless otherwise approved by City. Non-Profit Entity shall comply with the following:

1. Before trimming or removing trees, shrubs, and vegetation and/or performing structure alteration during bird nesting season (February 15 through August 31), a Qualified Biologist must be obtained by Non-Profit Entity to provide a pre-construction survey for nesting bird that may be affected during Construction Work.

2. Non-Profit Entity's Qualified Biologist shall conduct the nesting bird pre-construction survey within the 14 days before the commencement of Construction Work. If commencement of Construction Work is delayed beyond the two-week timeframe, the survey shall be repeated. If Construction Work begins in different areas at different times or there are periods of more than two weeks when no Construction Work is being conducted, Non-Profit Entity shall ensure that additional surveys are conducted by the Qualified Biologist in each area before the commencement of Construction Work in such area.

3. Non-Profit Entity shall be responsible for coordinating with City on schedule and confirming that surveys have been completed prior to initiation of any tree, shrub, and vegetation removal during this time. There will be no cost to the City (time or schedule) if there is a delay in the start of Construction Work at any location due to Non-Profit Entity's providing inadequate time for the Non-Profit Entity's Specialty Biological Monitor to perform a required survey.

4. The Qualified Biologist shall conduct migratory bird surveys within 250 feet of the construction area boundaries for nesting passerines and 500 feet for nesting raptors, as allowed by landowner access.

5. If no active nests are detected during surveys, then no additional mitigation is required.

6. If inactive nests (those that do not contain eggs, chicks, or raptors that appear to be establishing a nest) are identified and removal is authorized in writing by the City, Non-Profit Entity shall provide equipment and labor to remove the nest. Non-Profit Entity shall assume the support of a man lift for 5 working days.

7. If active bird nests are identified by the Qualified Biologist, no Work may occur at that tree or structure and in the surrounding area:

    a. For active nests found in trees, a 100-foot exclusion buffer of temporary fencing shall be erected around the tree with the active nest,

    b. For active nests found on bridges, a 100-foot exclusion buffer shall be established around the nest site, and no Work may occur within the 100-foot buffer until the Qualified Biologist has verified that young birds have left the nest, and that active nesting has been completed.

    c. For any active nests containing raptor species, the exclusion buffer will be 300-feet.

8. Non-Profit Entity shall immediately upon finding an injured or dead bird or discovering migratory or nongame bird nests within or adjacent to limits of project construction:

    a. Stop all Work within a 100-foot radius of the discovery.

    b. Notify City.

9. If active nests are detected, no Construction Work shall occur within 50 feet of any passerine nest or within 300 feet of any active raptor nest, unless otherwise allowed by the City.

C. Non-Profit Entity shall perform one or a combination of the following protection measures as required to prevent further nesting by birds in trees or structures during Project construction:

1. Install exclusion devices

2. Use nesting-prevention measures

3. Remove and dispose of partially constructed and unoccupied nests of migratory or nongame birds on a regular basis to prevent their occupation.

3.13 BAT PROTECTION

A. Not applicable

3.14 TREE PROTECTION

A. Prior to NTP2, Non-Profit Entity shall arrange a meeting on the site with City, Contractor, and such others as City may direct to review the Project Schedule, the “Trees of Concern”, the tree and landscape protection Submittals for this Section, the coordination with Work of other trades, and the selective thinning and clearing requirements. Adjustments to the type and extent of the protection shall be addressed at the time of the meeting.

1. Non-Profit Entity shall coordinate the meeting and inform all parties in writing (5) business days in advance of the scheduled meeting.

B. Non-Profit Entity’s equipment shall arrive on the Project Site clean of soil, seeds, and plant parts. Before tracked and heavy construction equipment leaves the Project Site, any accumulation of plant debris, soil and mud shall be washed off the equipment or otherwise removed onsite, and air filters shall be blown out. This shall be done in a manner that allows for collection of any plant debris, soil and mud for off-site disposal to prevent the spread of weeds.

C. Non-Profit Entity shall implement the following practices and measures to prevent damage to trees within the area of Work:

1. Vehicles and equipment shall be operated in such a manner as to avoid damage to tree and bush trunks, leaves and branches. Non-Profit Entity shall ensure that no damage to trees or landscaping is caused by maneuvering of vehicles or equipment, stacking of materials and equipment, or storage of vehicles, equipment, or supplies.

2. Pruning of trees shall be performed in conformance with the City of San Francisco Pruning Standards for Trees (June 27, 2006) (available at https://sfpublicworks.org/sites/default/files/234-SF_Pruning_Stds_6.27approved.pdf), only as authorized by the City’s Bureau of Urban Forestry, and under the supervision of the qualified arborist. Thinning shall not remove more than thirty percent (30%) of the existing leaf surface.

3. Non-Profit Entity shall not place backfill under protected trees unless indicated otherwise. Where fill is required for grading, and as indicated in the Design Documents, no fill shall be placed above existing grade line at trunks. Fill soil must percolate at a rate of 1"" per hour minimum.

4. Non-Profit Entity shall not change site grades which cause drainage to flow into or to collect near protected trees.

5. Non-Profit Entity shall not use protected trees as support posts, power poles, crane stays, sign posts, or anchorage for ropes, guy wires, power lines, or other similar functions.

6. Non-Profit Entity shall not damage trees through exposure to excessive water or heat from equipment, utility line construction, or burning of trash under or near shrubs or trees.

D. Non-Profit Entity shall implement the following practices and measures to prevent damage to tree roots:

1. Non-Profit Entity's vehicles and equipment shall not be driven off-road except along designated routes as far away as practical from tree root zones.

2. Non-Profit Entity is prohibited from stockpiling any excavation or construction materials within the canopy of trees, on lawn areas or near shrubs.

3. Excavated material (fill and overlay) shall not be deposited under the leaf/needle canopy of established trees. The excavated material shall be placed in piles along one side of a paved surface. In no case will Non-Profit Entity place the excavated material closer than 6-feet from the base of a tree.

4. Non-Profit Entity shall immediately clean and remove any construction residue that falls within the canopy of a tree or near shrubs.

5. Non-Profit Entity shall exclude grading or placement of heavy equipment within the drip line of trees on or adjacent to the site, unless approved by City. If approved by City, Non-Profit Entity's arborist will recommend and Non-Profit Entity shall implement measures to protect the tree (e.g., protecting the roots from compaction). Non-Profit Entity shall be responsible for replacing any damaged trees as directed by the City Planning Department.

6. Non-Profit Entity shall tunnel around roots where practical; otherwise, roots will be cut off approximately six inches (6") from construction and shall comply with the following:

a. Non-Profit Entity shall not rip or tear roots and shall prune injured roots cleanly and backfill as soon as possible.

b. If trimming of roots greater than 2-inches in diameter or fibrous root bundles of similar diameter is necessary during the course of construction, a Qualified Arborist provided by Non-Profit Entity shall supervise the trimming of such roots.

c. If immediate backfill is not possible, exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or exposed roots shall be packed with wet peat moss or four (4) layers of wet untreated burlap and temporarily supported and protected from damage until permanently covered with backfill.

7. Non-Profit Entity shall not induce damage to tree root systems from flooding, erosion, excessive wetting or drying resulting from dewatering or other operations.

8. Non-Profit Entity shall observe the following restrictions on underground trenching in the vicinity of trees:

a. Non-Profit Entity is prohibited from using powered equipment for trench and excavation Work within the tree drip line or where root intrusion exists on asphalt pathways to be reconstructed without written approval from City prior to start of such excavation work. Non-Profit Entity shall retain a Certified Arborist as needed to provide written direction at Non-Profit Entity's expense.

b. When excavating or trenching within the canopy of trees to remain, the Planning Department will be given 48 hours' notice.

c. Trenching within the canopy of trees may not proceed without a professional arborist present to perform compensatory root and branch pruning.

d. Non-Profit Entity shall place all piping 3 ½-inches and smaller and all conduits a minimum of 18-inch below the existing finished grade. New conduits shall be located at least 25-feet away from all tree trunks, 20-feet away from all buildings, 10-feet away from any pathway lighting, and 5 feet away from and parallel to any asphalt or concrete paths.

e. Non-Profit Entity shall place all piping 4-inches and larger a minimum of 3-feet below the existing finished grade except when approved by the City Planning Department to clear root systems. In no case shall the 4-inch or larger pipe be placed less than 2-feet below the finished grade.

f. Non-Profit Entity shall bend and/or transition underground conduit and piping so that the conduit or piping will thread between tree roots.

g. When possible, trenches shall not be run of the side of the tree exposed to prevailing winds as roots are primarily anchored on the windward side. Trenches shall not be cut across more than one quadrant of the tree root zone.

h. In areas where trenching is required under low hanging tree branches (8 to 12-feet off the ground), Non-Profit Entity shall operate equipment to a maximum height of 10-feet to avoid contact and possible damage to the tree branches.

i. Piping and conduit trenching work shall include the use of machinery that will not extend above 10-feet vertically for 5% of the linear trenching performed.

j. Trenching to a maximum of 3-feet as measured horizontally may be executed without written approval from the City Planning Department for the placement of pipe fittings and quick couplers at any location outside the drip line of any tree.

9. Trees to be preserved within the Work area shall be protected by Non-Profit Entity as follows:

a. 6-foot tall temporary tree protection composed of 2x4s shall be constructed to surround the outer edge of the tree basin.

b. 2x4s shall be mounted on 2-inch diameter galvanized iron posts, which shall be anchored into the soil on opposite corners of the guard and driven into the ground to 2-foot depth, avoiding any roots greater than 2-inches in diameter.

c. 2x4s shall be installed as a toe board surrounding the base of the tree protection for ADA compliance.

d. Orange snow fencing shall be placed around the tree protection.

e. Refer to Appendix ‘A’ for additional information.

10. Non-Profit Entity shall install on all trees within a band extending six feet past the limits of the Construction Work hay bales or rolls of erosion control wattling, secured around trunk to a height of 6 feet, or as otherwise directed by City.

E. Non-Profit Entity is in informed that San Francisco is a Quarantine County for the Sudden Oak Death pathogen *Phytophthora* and that where trees of the following species are known by Non-Profit Entity to be removed, or marked on the plans as intended for removal, by grubbing or otherwise, or pruning -- Coast Live Oak (*Quercus agrifolia*), Canyon Live Oak (*Quercus chrysolepis*), California Black Oak (*Quercus kelloggii*), Shreve’s Oak (*Quercus parvula* var.

shrevei), Tanoak (*Notholithocarpus densiflorus*), California bay laurel (*Umbellularia californica*) -- the following precautionary measures against the spread of *Phytophthora* will apply.

1. Plants of species that may harbor *Phytophthora* shall be chipped on site and the chips spread at the location of the same trees and/or shrubs that produced the debris. This plant debris may not be used for any purpose at any other location.

2. If spreading on site is not possible, materials shall be disposed of in landfill or at an industrial-scale composting facility. Non-Profit Entity shall provide documentation of such disposal to the City Planning Department.

3. For sites identified as potentially harboring *Phytophthora*, Non-Profit Entity shall ensure that the following actions are performed:

    a. All workers scrape, brush, and/or hose off accumulated soil and mud from clothing, gloves, boots, and shoes before leaving the site.

    b. Mud and plant debris are removed by blowing out or power washing chipper trucks, chippers, bucket trucks, fertilization and soil aeration equipment, cranes, and other vehicles before leaving the site.

    c. Soil and mud are removed or washed off from on vehicle tires, boots, shovels, stump grinders, trenchers, etc., before use at another site.

    d. Tools used in tree removal/pruning are disinfected with Lysol® spray, a 70% or greater solution of alcohol, or a solution consisting of 1 part household bleach to 9 parts water before leaving the site.

3.15 SITE RESTORATION

A. Non-Profit Entity shall furnish all material, labor, equipment, and service necessary to revegetate disturbed areas whose surface is not otherwise converted to gravel, pavement, new landscaping as indicated on plans, or new facilities.

B. Non-Profit Entity shall strip and dispose of at an offsite location the top three inches of soil from work areas where soil will be left exposed after the conclusion of Construction Work. Any remaining topsoil below this depth up to 12 inches deep generated during site grading and/or excavation shall be stockpiled separately onsite for reuse during revegetation. All topsoil stockpiles shall be covered with plastic and labeled while stored onsite to avoid improper use or disposal.

C. Non-Profit Entity shall ensure that any imported fill material, soil amendments, gravel etc., required for construction and/or restoration activities that would be placed in the upper 12 inches of the ground surface are free of vegetation and plant material. Certified, weed-free, imported erosion-control materials (or sterile rice straw in upland areas) shall be used exclusively.

D. Revegetation

1. Non-Profit Entity shall ensure that all seed complies with the California Seed Law of the Department and Agriculture. Seed materials shall meet all applicable inspections required by law. No non-native or invasive species shall be used in any restoration seeding.

2. Non-Profit Entity shall ensure that all seeding occurs between September 15 and December 15 unless otherwise approved by City.

3. Prior to hydroseeding, Non-Profit Entity shall prepare disturbed areas whose surface is not otherwise converted to gravel, pavement, or new facilities as seed beds, including:

a. Scarifying and decompacting soils to a depth of no less than 12 inches; and

b. Removing rocks greater than ½ inch and removing weeds; and

c. Restoring stockpiled topsoil; and

d. Incorporating sufficient compost to restore the area to original grade after having been trackwalked. Compost producers must be permitted by the Department of Resources Recycling and Recovery, Local Enforcement Agencies, and any other State and local agencies that regulate solid waste plants. If exempt from State permitting provisions, the composting plant must certify it complies with the guidelines and procedures for production of compost under 14 CA Code of Regs § 17868. Compost producers must be participants in the United States Composting Council's seal of testing assurance program.

4. Non-Profit Entity shall ensure that commercially obtained seed is labeled according to State and federal laws, under the California Food and Agricultural Code, and by the vendors supplying the seed. Seed shall be delivered to the Project Site in unopened supplier's sealed containers bearing original certification labels and the seed tag attached. Containers opened prior to inspection or without a label or tag shall not be accepted. Each seed bag shall be delivered to Project Site sealed and clearly marked as to the species, purity, percent germination, weed seed, inert material, dealer's guarantee, and date of test.

5. Non-Profit Entity shall store seed in a cool dry location away from moisture and contaminants. Seed materials shall be stored on site for no longer than two weeks. All storage locations shall be subject to written approval by City.

6. Non-Profit Entity shall ensure that seed is State-certified of the latest season's crop. Seed shall be delivered in original sealed packages bearing producer's guaranteed analysis for purity, germination, weed seed content, and inert material. Seed bags shall include manufacturer's tags in conformance with AMS Seed Act and applicable State laws. Wet, moldy, or otherwise damaged seed will be rejected by City.

7. Non-Profit Entity shall ensure that seed has been tested for purity and germination not more than (15) fifteen months prior to the application of the seed.

8. Non-Profit Entity shall ensure that seed is stock origination from within the San Francisco Bay Area Counties (San Francisco, San Mateo, Santa Cruz, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, Marin). Seed suppliers include Pacific Coast Seed, Livermore, CA (925) 373 4417; Larner Seed, Bolinas, CA (415) 868 9407; Hedgerow Farms, Winters, CA (530) 662-6847; and others.

9. Non-Profit Entity shall ensure that the minimum quantity of seed to be applied is in the quantities for each species (in pounds per acre) recommended by the seed supplier, mixed proportionally, which must be stated on the supplier's original label(s) on the original sealed packages.

10. Non-Profit Entity shall ensure that seed mix is as specified in column A "SEED MIX", below. If one or more species of grass, wildflower, and/or subshrub is not readily available, Non-Profit Entity may substitute a species of grass, wildflower, and/or subshrub from column B "SUBSITUTIONS" below. For linear areas of restoration, such as may be required to restore areas following trenching, less than 4' in width, subshrub species may be omitted. Other modifications to the seed mix may be made if approved by City. Non-Profit Entity shall allow at least 14 working days for written approvals to modifications to the seed mix.

11. Non-Profit Entity shall ensure that seed is a minimum of 70 percent Pure Live Seed and 80 percent Germination unless otherwise approved in advance by City.

E. SEED MIX

1. SEED MIX

Achillea millefolium (Yarrow, wildflower)

Acmispon glaber (deerweed, subshrub)

Artemisia californica (California sagebrush, subshrub)

Bromus carinatus (California brome, grass)

Elymus glaucus (Blue wildrye, grass)

Eschscholzia californica (California poppy, wildflower)

Festuca microstachys (Small fescue, grass)

Hordeum brachyantherum (California meadow barley, grass)

Lupinus bicolor (annual lupine, wildflower)

Stipa pulchra (Purple needlegrass, grass)

2. SUBSTITUTIONS

Chlorogalum pomeridianum (amole, soap plant, wildflower)

Diplacus aurantiaca (sticky monkeyflower, wildflower)

Eriogonum nudum (Naked buckwheat, subshrub)

Grindelia stricta var. *platyphylla*, (beach gum daisy, wildflower)

Hordeum brachyantherum (California meadow barley, grass)

Iris douglasiana (Douglas iris, wildflower)

Lupinus microcarpus (chick lupine, wildflower)

Phacelia californica (California phacelia, wildflower)

Scrophularia californica (California bee plant, wildflower)

Trifolium ciliolatum (foothill clover, wildflower)

Trifolium wormskioldii (cow clover, wildflower)

F. Non-Profit Entity shall ensure that tackifier is applied as part of the hydroseed slurry if hydroseed method is employed. If broadcast seeding method is employed, tackifier or sterile straw may be applied after seeding. Non-Profit Entity shall comply with the following:

1. Mixing shall be performed in a tank with a built-in, continuous agitation and recirculation system of sufficient operating capacity to produce a homogeneous slurry and a discharge system that will apply the slurry at continuous and uniform rate. The tank shall have a minimum working capacity of 700 gallons. City may authorize in writing the use of equipment of smaller capacity if it is demonstrated that such equipment is capable of performing all the operations satisfactorily. Mixing shall be performed in the presence of

Non-Profit Entity's QC Manager and City. Non-Profit Entity shall submit bags of materials used in the mix to City.

2. Water, fiber, stabilizing emulsion and other ingredients except seed shall be added to the tank simultaneously so that the finished load is a homogeneous mix of the specified ingredients. Seed shall be added last and shall be discharged within 1 hour. If mixture remains in tank for more than 1 hour, it shall be removed from the job site and replaced at Non-Profit Entity's expense. Once fully loaded, the slurry shall be agitated for 5 minutes to allow for uniform and thorough mixing. The slurry shall have the proper consistency to adhere to the soil even on slopes without clumping or running. Slurry shall be uniformly applied in a sweeping motion under pressure over the entire designated area to form a mat. The hydroseeded area shall not be rolled.

3. Seed and tackifier shall be applied to the disturbed areas in one operation at rates of 50 pounds per acre and 90-120 pounds per acre, respectively. At all times, materials shall be kept uniformly mixed in the hydromulcher tank during the application operation.

G. For areas greater than 2,500 sq feet, Non-Profit Entity shall utilize hydroseeding, but for areas under 2,500 sq feet, Non-Profit Entity shall broadcast seed, rake in the seed in two directions and cover with 1 inch layer of compost.

3.16 NOT USED

3.17 HUMAN REMAINS

A. If the body of a deceased human being in any stage of decomposition or completeness is encountered, all work in the area must halt and the San Francisco County Coroner must be contacted, pursuant to California Public Resources Code Sections 5097.98, and 5097.99.

3.18 ARCHAEOLOGICAL RESOURCE PROTECTION

A. Prior to issuance of construction permits, Non-Profit Entity shall have an Archeological Monitoring Plan reviewed and approved by City Planning Department. Non-Profit Entity shall ensure compliance with the approved Archeological Monitoring Plan which shall govern for the associated construction activities as stated in the approved plan.

B. Any soil disturbing activities below a depth of two feet below ground surface by Non-Profit Entity shall be preceded by the distribution by Non-Profit Entity of the San Francisco Planning Department archeological resource "ALERT" sheet to any Non-Profit Entity Contractor or Subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or Utility involved in soil disturbing activities within the Project Site, and all field personnel, including machine operators, field crew, pile drivers, supervisory personnel, etc..

1. Following the distribution of the "ALERT" sheet, Non-Profit Entity shall provide City with a signed affidavit confirming that all field personnel have received copies of the "ALERT" sheet.

    a. The "Alert" sheet and affidavit are available for download at: https://www.sfpublicworks.org/services/project-manual-and-reference-documents

2. If potential subsurface archaeological resources are discovered at the site, Non-Profit Entity shall promptly report their discovery to City. Subsurface archaeological finds may include any of the following:

    a. Concentrations of shellfish remains

    b. Evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks)

c. Concentrations of bones

d. Recognizable Native American artifacts (arrowheads, shell beads, stone mortars (bowls), humanly shaped rock)

e. Building foundation remains

f. Trash pits

g. Privies (Out-house holes)

h. Floor remains

i. Wells

j. Concentration of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.

k. Debris from the Great 1906 Earthquake and Fire (thick layers of burned building debris, charcoal, nails, fused glass, burned plaster, burned dishes, etc.)

l. Wood structural remains (building, ship, wharf, etc.)

m. Clay roof/floor tiles

n. Stone walls or footings

o. Gravestones

3. City will issue a written order to suspend work directing Non-Profit Entity to cease all Construction Work only at the location of the potential cultural resources find to allow City to assess the significance of the find.

4. Non-Profit Entity shall comply with all applicable Laws and any additional avoidance and minimization measures specified by City to minimize potential effects on cultural resources, which may include additional site security.

C. Where any soil-disturbing activity below the depth specified in paragraph 3.18(B)(1) below is to occur within an area noted and depicted on the Design Documents as an area of particular archaeological sensitivity for which monitoring is required, a Specialty Environmental Monitor – Archaeologist, provided by Non-Profit Entity, shall be present to conduct monitoring for the presence of potential archaeological resources. Non-Profit Entity shall comply with the following:

1. Archaeological monitoring is required for any ground disturbance below 2 feet of the existing ground (paved or unpaved) surface.

2. Non-Profit Entity shall be responsible for confirming that the required Specialty Environmental Monitor – Archaeologist is on-site as required prior to performing said work.

3. The Specialty Environmental Monitor – Archaeologist may order Non-Profit Entity to cease Work if a potential archaeological resource is detected. The Non-Profit Entity shall notify City immediately of such order. The Non-Profit Entity shall cease all construction operations only at the location of the potential archeological resource find to allow City to assess the significance of the find.

4. Non-Profit Entity shall comply with all applicable Laws and any additional avoidance and minimization measures specified by City to minimize potential effects on archeological resources, which may include additional site security. Non-Profit Entity is advised that the discovery of unique archaeological resources may entail extended periods of work suspension.

3.19 HISTORIC CULTURAL RESOURCE PROTECTION

A. Non-Profit Entity shall protect historic resources shown and labeled in the Design Documents and Reference Documents that are adjacent to, or in the right-of-way adjacent to or occupied by, the Project, including:

1. Not used.

2. All distinctive sidewalk elements, such as brick surfacing, brick gutters, granite curbs, cobblestones, non-standard sidewalk scoring and streetscape elements such as terrazzo finishes, sidewalk lights, and special sidewalk finishes that appear to be 45 years or older are potential historic resources and shall be protected in place, salvaged and re-installed, or replaced in kind to match the character of the existing condition as shown in the Design Documents or Reference Documents and/or found in place. Non-Profit Entity shall avoid damaging and protect in place any features described above and shall notify City of any feature not identified in the Design Documents that is in conflict with the proposed Work.

B. Non-Profit Entity shall comply with San Francisco Public Works Orders for the restoration of granite (granodiorite) curb in historic districts and the preservation of existing granite curb and existing surficial bricks and cobblestones, and shall comply with the following:

1. Compliance information shown in the Contract Documents:

a. All existing granite curb, and existing surficial bricks and cobblestones, within the area of proposed curb-and-gutter work is shown on the Project construction drawings.

b. The areal extent of All National Register of Historic Places historic districts, California Register of Historical Resources historic districts, and historic districts as identified by San Francisco Planning Code Articles 10 and 11 districts, for which the period of historic significance is coeval with the period of use of granite as a curb material by the City of San Francisco is shown on the project construction drawings.

c. The Non-Profit Entity is hereby informed that the following limits of Work are located within a historic district as shown in the Design Documents:

1) None

2. Except as noted below, all linear sections of curb, including driveways, within the Project limits within the limits of a historic district, regardless of existing condition, shall be restored using granite salvaged during demolition of the existing curb, supplemented with replacement granite sections, regardless of whether the curb line has moved.

a. Granite curb within the boundaries of a historic district shall only be replaced with concrete curb for new curb ramp radius construction, or as part of new linear and radius curb sections of new curb corner extensions installed for traffic calming (“bulb-outs”).

b. A corner extension that extends for longer than the minimum distance required for the installation of corner ADA curb ramps is considered sidewalk widening; such sections shall require the installation of granite curb.

c. No granite, cobblestones, or brick gutter shall be restored within a pedestrian accessible route (PAR) (see San Francisco Public Works Order No: 200369).

3. Any granite curb section not within a historic district shall be salvaged and reset in the location from which it was salvaged. If the curb line is moved as a result of the Project, the salvaged granite curb shall be reset parallel to its previous location. Salvaged granite curb is not required to be used on new linear and radius curb sections of new curb corner extensions ("bulb-outs") and may not be reused within a PAR.

4. Granite curb shall be installed in sections a minimum of 4-feet in length. If a section of granite to be replaced or restored is less than 4’ long, then the scope of Work must be expanded so that the minimum length of any single length of granite installed by Non-Profit Entity or extant and retained in position is a minimum of 4’ long.

5. City stockpiles of salvaged granite curb, when available, are made available to Non-Profit Entity upon application to the relevant department.

6. Specifications for new granite curb are as follows:

a. Material: Stone curb shall be made from granite, free from defects or flaws that might impair its usefulness as curb.

b. Dimensions: Each piece of curb shall be at least 4 feet long, 6 inches thick at top and bottom, and 16 inches deep.

c. Dressing: The top of the curb and its face for a depth of 6 inches shall have a first-class peen-hammered finish. These surfaces shall be true and properly squared and have no holes. A tolerance of 1/4 inch will be allowed in width of top of curb. The back of the curb, for a depth of 2 inches, shall be pointed to a fair surface, free from inequalities exceeding 1/2 inch, when measured from a straight edge. The joints of the curb shall show an even edge for a depth of 8 inches and will be kept full. The joints below the dressed portion shall not be pitched more than 1/4 inch under square. The joints throughout the dressed portion of the ends shall not exceed 1/4 inch. All edges bordering dressed surfaces shall be sharply defined.

d. Where gutters are deeper than 6 inches, the face of the granite curb shall be peen-hammered to the full depth of the gutter. The lower part of each stone shall be roughly squared and shall have an average thickness of not less than 6 inches at the bottom and at no point shall the thickness be less than 4 inches.

e. The curb for corners shall be cut to the prescribed curved lines, with joints on true radial lines. The joints between the several blocks of stones shall not exceed 1/8 inch.

f. Previously salvaged granite curb that meets the above specification is acceptable.

7. Except as noted above (PAR, bulb-outs), existing brick gutter shown on drawings shall be salvaged and reset in its original location, and existing surficial cobblestones shall be salvaged and reset in their original location.

a. City stockpiles of salvaged brick will be made available to Non-Profit Entity if available upon application to the relevant department. New replacement gutter brick shall be brick of approximately the same dimensions and approximate color of the existing brick and shall conform to ASTM standard specification C1272 − 17

for Heavy Vehicular Paving Brick Type R as well as meet criteria set forth in San Francisco Public Works guidance for slip resistance.

b. Other than brick gutter to be replaced/restored, no brick or cobblestone surfacing may be removed from the surface of the travel way without prior written approval by City.

8. Non-Profit Entity shall exercise care to minimize damage in transporting salvaged granite curb, brick, and cobblestones that Non-Profit Entity is returning to City.

a. Minimum size of cobblestone that may be returned is 4 inches square (16 square inches). Bricks to be returned must be whole.

b. Non-Profit Entity shall neatly and securely place the granite curb on pallets so it can be moved about safely after delivery. The cobblestones and/or brick shall be neatly and securely placed on pallets so they can be moved about safely after the delivery.

c. The salvaged granite curb, bricks, and cobblestones that will not be reset shall be delivered, including off loading, to a storage site within the City. Non-Profit Entity shall provide a minimum of forty-eight (48) hours prior notice of delivery, and delivery is limited to Monday through Friday 8:00 a.m. to 2:00 p.m. Non-Profit Entity shall provide a forklift for unloading.

d. Prior to transporting, Non-Profit Entity shall ensure that the brick and/or cobblestones are cleaned of dirt, grout and/or concrete. Non-Profit Entity shall take care during the transporting of the brick and cobblestones to minimize damage before delivery to City.

C. NOT USED

3.20 SAN FRANCISCO ENVIRONMENT CODE CLEAN CONSTRUCTION REQUIREMENTS FOR WORK IN AN AIR POLLUTANT EXPOSURE ZONE (APEZ)

A. Non-Profit Entity is informed that as the Project will use off-road powered construction machinery and is projected to last longer than 19 days, the following additional requirements of San Francisco Environment Code Chapter 25 apply. These requirements may be waived by the City Planning Department at the Contractor's request if the City Planning Department determines the absence of sensitive uses as defined by the Environment Code within 1,000-feet of the project construction limits as shown on the project drawings and/or if the project requires a limited amount of Off- Road Equipment for a limited duration.

B. Reference section 3.06.A and 3.06.B of this specification regarding equipment engine emissions standards, sources of power, and waivers.

C. Non-Profit Entity shall submit a Construction Emissions Minimization Plan (CEMP) to the City Planning Department for review and written approval for compliance with Chapter 25 of the San Francisco Environment Code.

D. Non-Profit Entity shall submit its initial CEMP no less than 28 days prior to mobilization. The CEMP will state, in reasonable detail, how the Non-Profit Entity shall meet the requirements of Section 2505 of the Environment Code.

1. The CEMP shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for each Construction Phase.

2. The description shall include equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation.

3. For the VDECS installed, the description shall include technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date and hour meter reading on installation date.

4. For off-road equipment using alternative fuels, the description shall also specify the type of alternative fuel.

5. Non-Profit Entity may use the Clean Construction Equipment Inventory Template to satisfy the CEMP requirements. Refer to the following link for that template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp

E. Non-Profit Entity agrees to comply fully with the CEMP and acknowledges that a significant violation of the CEMP will constitute a material breach of the Agreement. Non-Profit Entity must submit a signed CEMP Certification Statement to the City Planning Department. Refer to the following link for the Emissions Plan Certification Statement Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

F. After City Planning Department review and written approval, Non-Profit Entity shall make the CEMP available to the public for review onsite during working hours.

G. Non-Profit Entity shall post at the construction site a legible and visible sign summarizing the CEMP. Refer to the following link for the Clean Construction Sign Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

1. The sign shall also state that the public may ask to inspect the CEMP for the project at any time during working hours and will explain how to request to inspect the CEMP.

2. Non-Profit Entity shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way.

H. Non-Profit Entity shall submit quarterly and biannual reports to City Planning Department documenting compliance with the CEMP within seven business days of the end of each quarter.

I. Non-Profit Entity shall submit a final CEMP report within four weeks of achieving Substantial Completion summarizing compliance of the Construction Work with the CEMP, including the start and end dates and duration of each Construction Phase

J. The San Francisco Public Works Director may waive requirements of Chapter 25 of the Environment Code on the grounds set forth in Section 2507 of the Environment Code at the request of Non-Profit Entity, if such request is submitted to the City Planning Department

1. For any waiver granted, the City Planning Department will within two business days prepare a written notice of the waiver and a written memorandum explaining the basis for the waiver and the steps that will be taken to safeguard public and City employee health during the noncomplying work. The memorandum will also state the requirements subsequently imposed upon the contractor to minimize the use of noncomplying equipment or engines during the noncomplying work.

2. Requests for such waivers must be provided to the City Planning Department no fewer than two weeks prior to the planned implementation of the waiver and must be accompanied by conclusive substantiating information. Waivers are granted at the sole discretion of the San Francisco Public Works Director. The City will provide no compensation to the contractor for any consequences of the denial of a waiver request.

3.21 CONSTRUCTION SITE RUNOFF CONTROL PERMIT

A. Non-Profit Entity shall obtain a Construction Site Runoff Control Permit from the San Francisco Public Utilities Commission, Wastewater Enterprise, Collection System Division (SFPUC-WWE/CSD).

1. The Construction Site Runoff Control Permit Application shall include an Erosion and Sediment Control Plan (ESCP) developed signed and stamped by a Qualified Stormwater Pollution Prevention Plan Developer or Practitioner (QSD or QSP). The Erosion and Sediment Control Plan shall include a vicinity map showing the location of the Project Site in relationship to the surrounding area's water courses, water bodies, and other significant geographic features; a site survey; suitable contours for the existing and proposed topography, area drainage, proposed construction and sequencing, proposed drainage channels; proposed erosion and sediment controls; dewatering controls where applicable; soil stabilization measures where applicable; maintenance controls; sampling, monitoring, and reporting schedules; and any other information deemed necessary by the SFPUC.

a. A SWPPP for which a WDID has been issued will be accepted in lieu of an ESCP.

B. Non-Profit Entity shall submit the Construction Site Runoff Control Permit Application within (30) thirty calendar days after NTP 2 for review and approval by City. Non-Profit Entity is responsible for obtaining the Construction Site Runoff Control Permit in a timely manner and prior to the commencement of any land-disturbing activities.

1. Concurrent with the approved ESCP, Non-Profit Entity shall provide City with a checklist for City’s written approval prepared and stamped by the QSD or QSP listing all requirements of the ESCP.

C. Non-Profit Entity shall not commence demolition or earthmoving activities until City has verified ESCP implementation.

1. If required by the terms of the Construction Site Runoff Control Permit, or at the request of City, Non-Profit Entity shall also provide a QSD or QSP to verify ESCP implementation to the satisfaction of City.

D. At least two working days before each the following milestones, Non-Profit Entity shall provide the SFPUC with a transmittal, with a copy to City, to inform the SFPUC inspector that the following are about to occur:

1. Commencement of Construction Work.

2. Erosion and sediment control measures are completely installed and stabilized.

3. Final grading has been completed.

4. Substantial Completion.

E. Non-Profit Entity shall maintain a copy of the Construction Site Runoff Control Permit and Erosion and Sediment Control Plan onsite at all times.

F. Non-Profit Entity shall daily inspect, maintain, and repair all graded surfaces and erosion and sediment controls, drainage structures, and other protective devices, plantings, and ground cover installed while construction is active.

G. Every person who operates any erosion and sediment control or controls must provide analytical inspection and maintenance information as set forth in the Construction Site Runoff Control Permit.

1. Unless otherwise specified by the terms of the Construction Site Runoff Control Permit, the QSP/QSD or personnel trained by the QSP/QSD will use City -approved checklist to document weekly visual inspections to identify and record BMPs that need maintenance to operate effectively, that have failed, or that could fail to operate as intended.

2. Non-Profit Entity shall keep all completed inspection checklists and related documentation with the ESCP on-site or electronically and transmit copies of the previous month's checklists to City on the first business day of each month during project construction accompanied by a certification under penalty of perjury that such information is accurate and true.

H. Non-Profit Entity shall permit City and/or representatives of the SFPUC to perform inspections as may be deemed necessary.

I. Non-Profit Entity shall provide devices or locations necessary to conduct sampling or metering operations, if required by the terms of the Construction Site Runoff Control Permit and/or requested by City.

1. If effluent water-quality monitoring is required by the Construction Site Runoff Control Permit, sampling must be performed by a QSD, QSP, or persons trained by the QSP. pH and turbidity may be assessed using field meters; all other parameters will require laboratory analysis unless an exception is approved by City. Monitoring reporting shall be as prescribed in the project Construction Site Runoff Control Permit.

J. Non-Profit Entity's QSD shall (i) immediately inform City in the event that Project Change Orders or other change in construction conditions alters the implementation of the ESCP, (ii) update the ESCP to address changes affecting construction site-runoff management, and (iii) submit the revised ESCP to the SFPUC. Non-Profit Entity shall implement the revised ESCP as soon as feasible after acceptance by the SFPUC. Non-Profit Entity shall immediately communicate any additional modifications to the ESCP requested by the SFPUC to the City Planning Department and the City

3.22 NOT USED

3.23 CITY WATER-QUALITY PERMITTING

A. Well Construction/Decommissioning or Soil Borings Permit: Before conducting soil boring or constructing a well, Non-Profit Entity must obtain a permit issued by SFDPH to construct or operate an environmental or geotechnical well or soil boring.

1. These wells include, but are not limited to, cone penetrometers, inclinometers, piezometers, cathodic wells, exploratory wells, extraction wells, recovery wells, monitoring wells, temporary wells, irrigation wells, industrial wells, dewatering wells, wick drains, hydropunch soil borings, and soil borings drilled for geotechnical or environmental purposes (whether or not groundwater is encountered). This information is not intended as a substitute for familiarity with applicable Laws and regulations.

2. Non-Profit Entity shall use a driller with a C-57 state license.

3. Non-Profit Entity shall contact the SFDPH Environmental Health Branch, Monitoring Well Section at least 15 Working Days in advance of drilling at (415) 252-3800.

B. Underground Storage Tank (UST) Permit: Before modification, repair, removal and/or installation of fuel or chemical storage tanks, Non-Profit Entity shall obtain the written approval of the SFDPH, in compliance with Articles 21, 21A and 22 of the San Francisco Public Health Code, and its implementing regulations, compliance with applicable provisions of Chapters 6.7 and 6.75 of the California Health and Safety Code, Section 25280 et al. Contact the SFDPH Environmental Health Branch, HMUPA at (415) 252-3800.

1. If UST(s) are unexpectedly encountered during the course of construction, Non-Profit Entity shall stop Work at the site of the UST and alert City.

3.24 EMERGENCY OR BACKUP DIESEL GENERATOR HEALTH RISK REDUCTION PLAN

A. The Non-Profit Entity shall comply with the following:

1. Require all emergency or backup diesel generators to meet Tier 4 Final emission standards, reduce annual testing limit to 20 hours per year for each generator; or

2. Require all emergency or backup diesel generators to be battery-powered; or

3. Retain a qualified air quality consultant to develop a Diesel Generator Health Risk Reduction Plan. The Non-Profit Entity shall submit the plan to City Planning Department for review and approval prior to issuance of a permit for emergency diesel generators from the San Francisco Department of Building Inspection or the Bay Area Air Quality Management District. The plan must include, for each diesel generator, a description of the anticipated venting location, engine specifications, and annual maintenance testing procedures. The plan must demonstrate with substantial evidence that annual maintenance testing will not result in the project's overall construction and operational cancer risk exceeding 7 per one million persons exposed at nearby offsite sensitive receptors.

B. Non-Profit Entity shall be required to maintain records of the testing schedule for each diesel generator for the life of that generator and to provide this information for review to City Planning Department within three months of requesting such information.

3.25 FIXED MECHANICAL EQUIPMENT NOISE CONTROL FOR BUILDING OPERATIONS

A. Prior to approval of a building permit, the Non-Profit Entity shall submit documentation to City Planning Department, demonstrating with reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment):

1. Meets the noise limits specified in sections 2909 (b) and 2909 (d) of the noise ordinance (i.e., an 8-dB increase above the ambient noise level at the property plane for commercial or mixed-use properties; and

2. Interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively).

3. Acoustical treatments required to meet the noise ordinance may include, but are not limited to:

4. Enclosing noise-generating mechanical equipment; and

5. Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment; and

6. Using mufflers or silencers on equipment exhaust fans; and

7. Orienting or shielding equipment to protect noise-sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible; and

8. Increasing the distance between noise-generating equipment and noise- sensitive receptors; and/or

9. Placing barriers around the equipment to facilitate the attenuation of noise.

B. Compliance with this fixed-mechanical equipment noise control for building operations standard requirement does not obviate the need for the equipment to demonstrate compliance with the noise ordinance throughout the lifetime of the project.

3.26 DESIGN MEASURES TO REDUCE PROJECT SPECIFIC WIND IMPACTS

A. The project sponsor team shall implement as many of the design measures identified in the wind impact mitigation report as needed to reduce the proposed project's or project variants' potential to create a new wind hazard or exacerbate an existing wind hazard in publicly accessible areas of substantial pedestrian use to less-than-significant levels, such as:

1. porous facades on portions of the north, east and west sides for natural ventilation as part of the heating, ventilation, and air conditioning strategy for the new transit facility at the second and third levels; and

2. recessed building corner up to 12 feet in height at the southwest corner of proposed building near Bryant Street and Mariposa Street intersection; and

3. vertical elevated screens on portions of the second and third levels of the west façade; and

4. vertical wind screens at grade level on the adjacent Bryant Street sidewalk near the Bryant Street and Mariposa Street intersection; and

5. additional on-site landscaping or off-site streetscape improvements and wind screens.

B. If changes to the building design or massing are proposed after certification of the Final Environmental Impact Report,

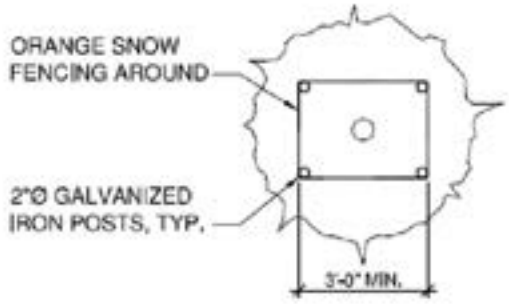
1. additional wind analysis may be required to confirm the modified design does not result in any 9-hour wind hazard exceedances and to minimize 1-hour wind hazard exceedances.

2. If City Planning Department determines that the modified design could result in wind hazard criterion exceedances (for example, due to the removal of one or more wind reducing features), the Non-Profit Entity shall retain a qualified wind consultant to prepare a wind analysis under the direction of the City Planning Department. The wind analysis may require a wind tunnel test and shall identify wind reduction measures needed to avoid 9-hour wind hazard exceedances and to minimize 1-hour wind hazard exceedances.

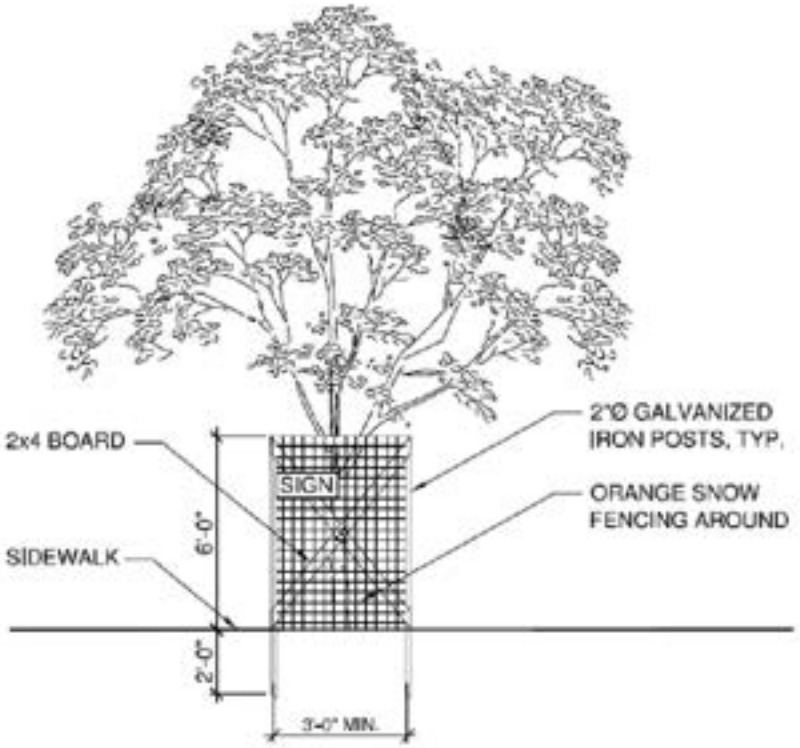
C. The final wind impact mitigation report should not find that the project produces a net increase of the already identified wind hazard exceedances. City Planning Department shall approve the final list of wind reduction measures that the project sponsor team shall implement.

END OF SECTION

APPENDIX A (01 35 43): SAMPLE TREE PROTECTION STREET TREE



PLAN VIEW



STREET TREE PROTECTIVE FENCE

APPENDIX B (01 35 43): COMPLETE ENVIRONMENTAL MITIGATION AND MONITORING PLAN

APPENDIX APPLIES TO:
01 35 43
01 35 50

MITIGATION MONITORING AND REPORTING PROGRAM:
MITIGATION, IMPROVEMENT & PUBLIC WORKS STANDARD CONSTRUCTION MEASURES

Record No.:	Case No. 2019-021884ENV	Block/Lot:	3971/001
Project Title:	SFMTA Potrero Yard Modernization Project	*Lot Size:*	4.4 acres
BPA Nos:	Submittal pending	*Project Sponsor:*	Chris Lazaro, SFMTA, (415) 549-6572
Zoning:	Public (P) Use District	*Lead Agency:*	San Francisco Planning Department
	65-X Height and Bulk District	*Staff Contact:*	Jennifer McKellar, Planning – (628) 652-7563

Tables 1 and 3 below indicate when compliance with each mitigation and improvement measure must occur. Some mitigation and improvement measures span multiple phases. Substantive descriptions of each mitigation measure's requirements are provided on the following pages in the Mitigation Monitoring and Reporting Program. The San Francisco Municipal Transportation Agency (SFMTA) is the project sponsor and property owner of the project site at 2500 Mariposa Street (Potrero Yard). Together the SFMTA and a private project co-sponsor (developer) are referenced below as the project sponsor team. In addition, pursuant to the May 11, 2023, memorandum regarding Public Works' Authority for project delivery of the Potrero Yard Project and the May 31, 2020, attachment referenced therein, San Francisco Public Works assumes responsibility for environmental compliance, including applicable Standard Construction Measures in Tables 2 and 6 below.

	Period of Compliance			
Table 1: Adopted Mitigation Measure	**Prior to the start of Construction***	**During Construction****	**Post-Construction or Operational**	**Compliance with MM completed?**
Mitigation Measure M-CR-1a: Documentation of Historical Resource	X			
Mitigation Measure M-CR-1b: Salvage Plan	X			
Mitigation Measure M-CR-1c: Interpretation of the Historical Resource	X			
Mitigation Measure M-CR-1d: Oral Histories	X			
Mitigation Measure M-TCR-1: Tribal Cultural Resources Preservation and/or Interpretive Program	X	X	X	
Mitigation Measure M-NO-1: Construction Noise Control	X	X		
Mitigation Measure M-NO-2: Vibration-Sensitive Equipment at 2601 Mariposa Street (KQED Building)	X	X		
Mitigation Measure NO-3: Fixed Mechanical Equipment Noise Control for Building Operations	X		X	

Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization	X	X		
Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan	X		X	
Mitigation Measure M-WI-1: Design Measures to Reduce Project-Specific Wind Impacts	X			
Mitigation Measure M-GE-6a: Inadvertent Discovery of Paleontological Resources	X	X		
Mitigation Measure M-GE-6b: Preconstruction Paleontological Evaluation for Class 3 (Moderate) Paleontological Sensitivity Sediments during Construction	X	X		

*Prior to any ground disturbing activities at the project site.
**Construction is broadly defined to include any physical activities associated with construction of a development project including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction.

	Period of Compliance			
Table 2: Adopted Public Works Standard Construction Measure	**Prior to the start of Construction***	**During Construction****	**Post-Construction or Operational**	**Compliance with SCM completed?**
SCM #1: SEISMIC AND GEOTECHNICAL STUDIES	X	X		
SCM #2: AIR QUALITY	X	X		
SCM #3: WATER QUALITY	X	X		
SCM #4: TRAFFIC	X	X		
SCM #5: NOISE	X	X		
SCM #6: HAZARDOUS MATERIALS	X	X		
SCM #7: BIOLOGICAL RESOURCES	X	X		
SCM #8: VISUAL AND AESTHETIC CONSIDERATIONS, PROJECT SITE	X	X		
SCM #9: CULTURAL RESOURCES	X	X		

*Prior to any ground disturbing activities at the project site.
**Construction is broadly defined to include any physical activities associated with construction of a development project including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction.

(Continues on next page)

	Period of Compliance			
Table 3: Adopted Improvement Measure	**Prior to the start of Construction***	**During Construction****	**Post-Construction or Operational**	**Compliance with Improvement Measure completed?**
Improvement Measure I-TR-A: Construction Management Plan – Additional Measures	X	X		
Improvement Measure I-TR-B: Driveway and Loading Operations Plan (DLOP)			X	

*Prior to any ground disturbing activities at the project site.
**Construction is broadly defined to include any physical activities associated with construction of a development project including, but not limited to: site preparation, clearing, demolition, excavation, shoring, foundation installation, and building construction.

Signatures:

I agree to implement the attached mitigation measure(s) and standard construction measures as described herein as conditions of project approval.

Private Project Co-Sponsor (Developer)

December 22, 2023
Date

Note to project sponsor team: Please contact CPC.EnvironmentalMonitoring@sfgov.org to begin the environmental monitoring process prior to the submittal of your building permits to the San Francisco Department Building Inspection.

(Continues on next page)

MITIGATION MONITORING AND REPORTING PROGRAM

Table 4: MITIGATION MEASURES FOR THE POTRERO YARD MODERNIZATION PROJECT

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
MONITORING AND REPORTING PROGRAM[1]				
MITIGATION MEASURES AGREED TO BY PROJECT SPONSOR TEAM				
HISTORIC ARCHITECTURAL/CULTURAL RESOURCES				
Mitigation Measure M-CR-1a: Documentation of Historical Resource (HRER Part II, Mitigation Measure 1)				
Prior to issuance of a demolition permit, the project sponsor team shall undertake Historic American Building/Historic American Landscape Survey-like (HABS/HALS-like) documentation of the building features. The documentation shall be undertaken by a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History, History, or Architecture (as appropriate) to prepare written and photographic documentation of the Potrero Trolley Coach Division Facility. The specific scope of the documentation shall be reviewed and approved by the Planning Department but shall include the following elements: Measured Drawings – A set of measured drawings shall be prepared that depict the existing size, scale, and dimension of the historic resource. Planning Department staff will accept the original architectural drawings or an as-built set of architectural drawings (e.g., plans, sections, elevations). Planning Department staff will assist the consultant in determining the appropriate level of measured drawings. Historic American Buildings/Historic American Landscape Survey-Level Photographs – Either Historic American Buildings/Historic American Landscape Survey (HABS/HALS) standard large-format or digital photography shall be used. The scope of the digital photographs shall be reviewed by Planning Department staff for concurrence, and all digital photography shall be conducted according to the latest National Park Service (NPS) standards. The	Project Sponsor Team and qualified consultant, at the direction of the ERO	Prior to issuance of excavation permit or commencement of construction	Planning Department preservation staff shall review and approve the documentation package	Considered complete upon completion of the Planning Department approved documentation provided to the repositories in their preferred format and the print-on-demand booklet is made available to the public, upon request

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
photography shall be undertaken by a qualified professional with demonstrated experience in HABS/HALS photography. Photograph views for the data set shall include contextual views; views of each side of the building and interior views, including any original interior features, where possible; oblique views of the building; and detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the data set. HABS/HALS Historical Report – A written historical narrative and report shall be provided in accordance with the HABS/HALS Historical Report Guidelines. The written history shall follow an outline format that begins with a statement of significance supported by the development of the architectural and historical context in which the structure was built and subsequently evolved. The report shall also include architectural description and bibliographic information. Video Recordation (HRER Part II, Mitigation Measure 3) – Video recordation shall be undertaken before demolition or site permits are issued. The project sponsor team shall undertake video documentation of the affected historical resource and its setting. The documentation shall be conducted by a professional videographer, one with experience recording architectural resources. The documentation shall be narrated by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historic use, and historic context of the historical resource. This mitigation measure would supplement the				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
traditional HABS/HALS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research. Softcover Book – A Print-on-Demand softcover book shall be produced that includes the content from the historical report, historical photographs, HABS/HALS photography, measured drawings, and field notes. The Print-on-Demand book shall be made available to the public for distribution. The project sponsor team shall transmit such documentation to the History Room of the San Francisco Public Library, San Francisco Architectural Heritage, the Planning Department, and the Northwest Information Center. The HABS/HALS documentation scope will determine the requested documentation type for each facility, and the project sponsor team will conduct outreach to identify other interested groups. All documentation will be reviewed and approved by the Planning Department's staff before any demolition or site permit is granted for the affected historical resource.				
Mitigation Measure M-CR-1b: Salvage Plan (HRER Part II, Mitigation Measure 2)				
Prior to any demolition that would remove character-defining features, the project sponsor team shall consult with the planning department as to whether any such features may be salvaged, in whole or in part, during demolition/alteration. The project sponsor team shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program.	Project Sponsor Team/qualified preservation consultant at the direction of the ERO	Prior to issuance of construction permits	Planning Department	Considered compete after salvage occur and interpretive program is complete
Mitigation Measure M-CR-1c: Interpretation of the Historical Resource (HRER Part II, Mitigation Measure 4)				
The project sponsor team shall facilitate the development of an interpretive program focused on the history of the project site. The interpretive program should be developed and implemented by a qualified professional with demonstrated experience in displaying information and graphics to the public in a visually interesting	Project Sponsor Team, construction contractors, and qualified consultant, at the	Prior to issuance of excavation permit or commencement of construction	Planning Department preservation staff shall review and approve the interpretive program plan	Considered complete upon the Planning Department's approval and the Project Sponsor Team's implementation of the interpretive program plan

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
manner, such as a museum or exhibit curator. This program shall be initially outlined in a proposal for an interpretive plan subject to review and approval by Planning Department staff. The proposal shall include the proposed format and the publicly-accessible location of the interpretive content, as well as high-quality graphics and written narratives. The proposal prepared by the qualified consultant describing the general parameters of the interpretive program shall be approved by Planning Department staff prior to issuance of the architectural addendum to the site permit. The detailed content, media, and other characteristics of such an interpretive program shall be approved by Planning Department staff prior to issuance of a Temporary Certificate of Occupancy. The interpretative program shall include but not be limited to the installation of permanent on-site interpretive displays or screens in publicly accessible locations. Historical photographs, including some of the large-format photographs required by Mitigation Measure M-CR-1a, may be used to illustrate the site's history. The oral history program required by Mitigation Measure M-CR-1d will also inform the interpretative program. The primary goal is to educate visitors and future residents about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts. These themes would include but not be limited to the subject property's historic significance for its association with the earliest years of San Francisco's Municipal Railway, the United States' first publicly owned street railway and for its distinctive characteristics as a car barn, for its post-Earthquake period of construction, and as the work of master Michael M. O'Shaughnessy.	direction of the ERO			
Mitigation Measure M-CR-1d: Oral Histories (HRER Part II, Mitigation Measure 5)				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
The project sponsor team shall undertake an oral history project on the resource that may include interviews of people such as former SFMTA employees, or other community members who may offer informative historic perspectives on the history and significance of the resource. The project shall be conducted by a professional historian in conformance with the Oral History Association's Principles and Best Practices (https://www.oralhistory.org/principles-and-best-practices-revised-2018/). In addition to transcripts of the interviews, the oral history project shall include a narrative project summary report containing an introduction to the project, a methodology description, and brief summaries of each conducted interview. Copies of the completed oral history project shall be submitted to the San Francisco Public Library, Planning Department, and other interested historical institutions. The oral history project shall also be incorporated into the interpretative program.	Project Sponsor Team and qualified consultant, at the direction of the ERO	Prior to issuance of excavation permit or commencement of construction	Planning Department preservation staff shall review and approve the documentation package	Considered complete upon the Planning Department's approval and the Project Sponsor Team's implementation of the interpretive program plan
Mitigation Measure M-TCR-1: Tribal Cultural Resources Preservation and/or Interpretive Program				
During ground-disturbing activities that encounter archeological resources, if the Environmental Review Officer (ERO) determines that a significant archeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the ERO determines that the resource constitutes a tribal cultural resource (TCR) and that the resource could be adversely affected by the proposed project, the proposed project shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible. If the ERO, in consultation with the project sponsor, determines that preservation-in-place of the TCR would be both feasible and effective, then the archeological consultant shall prepare an archeological resource preservation plan (ARPP). Implementation of	Project Sponsor Team, construction contractors, and qualified consultant, at the direction of the ERO	Consultation and planning starting upon discovery of a potential TCR during archeological testing or during construction excavations; interpretive program to be implemented prior to issuance of building occupancy permit	Environmental Review Officer (ERO) or designee	In the event of the discovery of a TCR, considered complete after implementation of the Planning Department approved interpretation program

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
the approved ARPP by the archeological consultant shall be required when feasible. If the ERO, in consultation with the affiliated Native American tribal representatives and the project sponsor, determines that preservation-in-place of the TCR is not a sufficient or feasible option, then the project sponsor shall implement an interpretive program of the TCR in consultation with affiliated Native American tribal representatives. An interpretive plan produced in consultation with affiliated Native American tribal representatives, at a minimum, and approved by the ERO, would be required to guide the interpretive program. The plan shall identify proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays.				
NOISE				
Mitigation Measure M-NO-1: Construction Noise Control				
The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare construction noise control documentation as detailed below. Prior to issuance of any demolition or building permit, the project sponsor team shall submit a project-specific construction noise control plan to the Environmental Review Officer (ERO) or the ERO's designee for approval. The construction noise control plan shall be prepared by a qualified acoustical engineer, with input from the construction contractor, and include all feasible measures to reduce construction noise. The construction noise control plan shall identify noise control measures to meet a performance target of	Project Sponsor Team, construction contractors, acoustical engineer	Prior to the issuance of construction permits; prior to the commencement of each construction stage; implementation of monitoring ongoing during construction	Environmental review officer or designee in Planning Department, Project Sponsor Team	Noise control plan approved by ERO/Planning Department prior to construction and considered complete upon submission of a noise monitoring report after each construction phase and completion of construction activities

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
construction activities not resulting in a noise level greater than 90 dBA at noise-sensitive receptors and 10 dBA above the ambient noise level at noise-sensitive receptors. The project sponsor team shall ensure that requirements of the construction noise control plan are included in contract specifications. If nighttime construction is required, the plan shall include specific measures to reduce nighttime construction noise. The plan shall also include measures for notifying the public of construction activities, complaint procedures, and a plan for monitoring construction noise levels in the event complaints are received. The construction noise control plan shall include the following measures to the degree feasible, or other effective measures, to reduce construction noise levels: • Use construction equipment that is in good working order, and inspect mufflers for proper functionality; • Select "quiet" construction methods and equipment (e.g., improved mufflers, use of intake silencers, engine enclosures); • Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors; • Prohibit the idling of inactive construction equipment for more than five minutes; • Locate stationary noise sources (such as compressors) as far from nearby noise-sensitive receptors as possible (including future onsite noise-sensitive receptors at the Phase 2 Bryant Street Housing under the phased construction scenarios for the Refined Project), muffle such noise sources, and construct barriers around such sources and/or the construction site. • Avoid placing stationary noise-generating equipment (e.g., generators, compressors) within noise-sensitive buffer areas (as determined by the acoustical engineer) immediately adjacent to neighbors (including future onsite noise-				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
sensitive receptors at the Phase 2 Bryant Street Housing under the phased construction scenarios for the Refined Project). • Enclose or shield stationary noise sources from neighboring noise-sensitive properties (including the future onsite noise-sensitive receptors at the Phase 2 Bryant Street Housing under the phased construction scenarios for the Refined Project) with noise barriers to the extent feasible. To further reduce noise, locate stationary equipment in pit areas or excavated areas, if feasible; and • Install temporary barriers, barrier-backed sound curtains and/or acoustical panels around working powered impact equipment and, if necessary, around the perimeter of active construction areas or phases. When temporary barrier units are joined together, the mating surfaces shall be flush with each other. Gaps between barrier units, and between the bottom edge of the barrier panels and the ground, shall be closed with material that completely closes the gaps, and dense enough to attenuate noise. • Under the phased construction scenarios for the Refined Project, develop strategies to reduce exposure to construction noise in coordination with future onsite noise-sensitive receptors at the Phase 2 Bryant Street Housing. Some options to reduce noise include limiting noise to Phase 2 Bryant Street receptors by delaying or limiting occupancy in units closest to the construction zone or notifying receptors of loud construction periods. These options should be explored as part of the noise control plan prepared by a qualified noise consultant and the construction contractor. The construction noise control plan shall include the following measures for notifying the public of construction activities, complaint procedures, and monitoring construction noise levels:				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
• Designate an on-site construction noise manager for the project; • Notify neighboring noise-sensitive receptors within 300 feet of the project construction area at least 30 days in advance of high-intensity noise-generating activities (e.g., pier drilling, pile driving, and other activities that may generate noise levels greater than 90 dBA at noise-sensitive receptors) about the estimated duration of the activity (including future onsite noise-sensitive receptors at the Phase 2 Bryant Street Housing under the phased construction scenarios for the Refined Project); • Post a sign onsite describing noise complaint procedures and a complaint hotline number that shall always be answered during construction; • Implement a procedure for notifying the planning department of any noise complaints within one week of receiving a complaint; • Establish a list of measures for responding to and tracking complaints pertaining to construction noise. Such measures may include the evaluation and implementation of additional noise controls at sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat); and • Conduct noise monitoring (measurements) at the beginning of major construction phases (e.g., demolition, grading, excavation) and during high-intensity construction activities to determine the effectiveness of noise attenuation measures and, if necessary, implement additional noise control measures. The construction noise control plan shall include the following additional measures in the event of pile-driving activities:				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
• When pile driving is to occur within 600 feet of a noise-sensitive receptor, implement "quiet" pile-driving technology (such as pre-drilling of piles, sonic pile drivers, auger cast-in-place, or drilled-displacement, or the use of more than one pile driver to shorten the total pile-driving duration [only if such measure is preferable to reduce impacts to sensitive receptors]) where feasible, in consideration of geotechnical and structural requirements and conditions; • Where the use of driven impact piles cannot be avoided, properly fit impact pile driving equipment with an intake and exhaust muffler and a sound-attenuating shroud, as specified by the manufacturer; and • Conduct noise monitoring (measurements) before, during, and after the pile-driving activity.				
Mitigation Measure M-NO-2: Vibration-Sensitive Equipment at 2601 Mariposa Street (KQED Building)				
Prior to construction, the SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall designate and make available a community liaison to respond to vibration complaints from building occupants at the KQED building, located at 2601 Mariposa Street. Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed. Through the community liaison, the project sponsor team shall provide notification to property owners and occupants of 2601 Mariposa Street at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment, informing them of the estimated start date and duration of vibration-generating construction activities. Equipment types capable of generating such vibration include an impact pile	Project Sponsor Team, and qualified consultant, at the direction of the ERO	Prior to the issuance building and construction permits	Project sponsor, project acoustical engineer and Planning Department	Considered complete after construction activities are completed and after buildings and/or structures are remediated to their pre-construction condition at the conclusion of vibration-generating activity on the site, should any damage occur

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
driver, or similar equipment, operating within 250 feet of the building or a vibratory roller, or similar equipment, operating within 125 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. Alternative equipment and techniques may include, but are not limited to: • pre-drilled piles, • caisson drilling, • oscillating or rotating pile installation, • jetting piles into place using a water injection at the tip of the pile could be substituted for driven piles, if feasible, based on soil conditions, • static rollers could be substituted for vibratory rollers in some cases. If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the project sponsor team and the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level threshold for vibration sensitive equipment, as set forth by Federal Transit Authority (FTA). To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meets the performance target of 65 VdB vibration level for vibration sensitive equipment. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting ground-borne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Ground-borne				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.				
Mitigation Measure NO-3: Fixed Mechanical Equipment Noise Control for Building Operations				
The SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall prepare operational noise control documentation as detailed below. Prior to approval of a building permit, the project sponsor team shall submit documentation to the Environmental Review Officer (ERO) or the officer's designee, demonstrating with reasonable certainty that the building's fixed mechanical equipment (such as heating, ventilation and air conditioning [HVAC] equipment) meets the noise limits specified in sections 2909 (b) and 2909 (d) of the noise ordinance (i.e., an 8-dB increase above the ambient noise level at the property plane for commercial or mixed-use properties; and interior noise limits of 55 dBA and 45 dBA for daytime and nighttime hours inside any sleeping or living room in a nearby dwelling unit on a residential property assuming windows open, respectively). Acoustical treatments required to meet the noise ordinance may include, but are not limited to: • Enclosing noise-generating mechanical equipment; • Installing relatively quiet models of air handlers, exhaust fans, and other mechanical equipment; • Using mufflers or silencers on equipment exhaust fans; • Orienting or shielding equipment to protect noise-sensitive receptors (residences, hospitals, convalescent homes, schools, churches, hotels and motels, and sensitive wildlife habitat) to the greatest extent feasible; • Increasing the distance between noise-generating equipment and noise-sensitive receptors; and/or	Project Sponsor Team and qualified consultant, at the direction of the ERO	Prior to the issuance building permit	Environmental Review Officer (ERO) or designee	Considered complete after receipt and acceptance of the appropriate documentation to the ERO

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
• Placing barriers around the equipment to facilitate the attenuation of noise. Compliance with this fixed-mechanical equipment noise control for building operations standard requirement does not obviate the need for the equipment to demonstrate compliance with the noise ordinance throughout the lifetime of the project.				
AIR QUALITY				
Mitigation Measure M-AQ-1: Off-Road Construction Equipment Emissions Minimization				
The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as project sponsor team) shall comply with the following: A. Engine Requirements. 1. All off-road equipment greater than or equal to 25 horsepower shall have engines that meet U.S. EPA or California Air Resources Board Tier 4 Final off-road emission standards. 2. Where access to alternative sources of power is available, portable diesel engines shall be prohibited. If access to alternative sources of power is infeasible, portable diesel engines shall meet the requirements of Subsection (A)(1). 3. Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes, at any location, except as provided in exceptions to the applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The project sponsor team shall post legible and visible signs in English, Spanish, and Chinese, in designated queuing	Project Sponsor Team, construction contractors	Prior to issuance of a construction permit; implementation ongoing during construction	Environmental Review Officer (ERO) or designee/ project sponsor	Considered complete upon Planning Department review and approval of Construction Emissions Minimization Plan, ongoing review and approval of biannual reports, and review and approval of final construction report

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
areas and at the construction site to remind operators of the two-minute idling limit. 4. The project sponsor team shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications. B. Waivers. 1. The San Francisco Planning Department Environmental Review Officer (ERO) may waive the equipment requirements of Subsection (A)(1) if: a particular piece of off-road Tier 4 Final equipment is not regionally available, not technically feasible, or would not produce desired emissions reduction due to expected operating modes. In granting the waiver, the project sponsor team must demonstrate with substantial evidence that the project construction does not exceed the BAAQMD threshold for NOx (54 lbs/day) by resulting in a net increase of average daily NOx emissions greater than 4 pounds per day. The project sponsor team must also demonstrate with substantial evidence that the overall combined construction and operational excess cancer risk does not exceed 7 per 1 million persons exposed at nearby sensitive receptors. C. Construction Emissions Minimization Plan. 1. Before starting onsite construction activities, the project sponsor team shall submit a Construction Emissions Minimization Plan (Plan) to the ERO for review and approval. The Plan shall state, in reasonable detail, how the project sponsor team will meet the requirements of Section A.				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
2. The Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for every construction phase. The description may include, but is not limited to: equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel use and hours of operation. 3. The project sponsor team shall ensure that all applicable requirements of the Plan have been incorporated into the contract specifications. The Plan shall include a certification statement that the project sponsor team agrees to comply fully with the Plan. 4. The project sponsor team shall make the Plan available to the public for review onsite during working hours. The project sponsor team shall post at the construction site a legible and visible sign summarizing the Plan. The sign shall also state that the public may ask to inspect the Plan for the project at any time during working hours and shall explain how to request to inspect the Plan. The project sponsor team shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way. D. Monitoring 1. After start of construction activities, the project sponsor team shall submit biannual reports to the ERO documenting compliance with the Plan. After completion of construction activities and prior to receiving a final certificate of occupancy, the project sponsor team shall submit to the ERO a final report summarizing construction activities, including the start and end dates and duration of each construction phase, and the specific information required in the Plan.				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
Mitigation Measure M-AQ-3: Emergency Diesel Generator Health Risk Reduction Plan				
The SFMTA and private project co-sponsor and/or its contractors on SFMTA's behalf (referred to below as the project sponsor team) shall comply with the following: 1. Require all emergency diesel generators to meet Tier 4 Final emission standards and reduce annual testing limit to 20 hours per year for each generator; or 2. Require all emergency generators to be battery-powered; or 3. The project sponsor team shall retain a qualified air quality consultant to develop an Emergency Diesel Generator Health Risk Reduction Plan. The project sponsor team shall submit the plan to the San Francisco Planning Department Environmental Review Officer (ERO) for review and approval prior to issuance of a permit for emergency diesel generators from the San Francisco Department of Building Inspection or the Bay Area Air Quality Management District. The plan must include, for each emergency diesel generator, a description of the anticipated venting location, engine specifications, and annual maintenance testing procedures. The plan must demonstrate with substantial evidence that annual maintenance testing will not result in the project's overall construction and operational cancer risk exceeding 7 per one million persons exposed at nearby offsite sensitive receptors. Additionally, the operator of the facility at which the generators are located (including the private project co-sponsor as applicable) shall be required to maintain records of the testing schedule for each emergency diesel generator for the life of that generator and to	Project Sponsor Team and construction contractor	Prior to issuance of a permit for emergency diesel generator	Project Sponsor Team, facility maintenance contractor, and the Planning Department	Considered complete upon Planning Department review and approval of Emergency Diesel Generator Health Risk Reduction Plan

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
provide this information for review to the planning department within three months of requesting such information.				
WIND				
Mitigation Measure M-WI-1(a): Design Measures to Reduce Project-Specific Wind Impacts				
The project sponsor team shall retain a qualified wind consultant to prepare, in consultation with the San Francisco Planning Department (planning department), a wind impact mitigation report that identifies design measures to reduce the project's wind impacts in the project scenario. Prior to certification of the Final Environmental Impact Report, the project sponsor team shall submit the wind impact mitigation report to the planning department for its final review and approval. The wind impact mitigation report shall incorporate updated information on the building design based on a list of potential wind reduction measures identified below, along with the estimated effectiveness of each measure to reduce the identified off-site wind hazards. • Porous façades on portions of the north, east and west sides for natural ventilation as part of the heating, ventilation, and air conditioning strategy for the new transit facility at the second and third levels • Recessed building corner up to 12 feet in height at the southwest corner of proposed building near Bryant/Mariposa intersection • Vertical elevated screens on portions of the second and third levels of the west façade (Bryant Street) • Vertical wind screens at grade level on the adjacent Bryant Street sidewalk near the Bryant/Mariposa intersection Such wind reduction design measures may include additional on-site landscaping, or equivalent wind-reducing features; and off-site wind reduction measures such as landscaping, streetscape	Project Sponsor Team/qualified consultant	Prior to completion of the environmental review	Project Sponsor Team, and the Planning Department	Completion of and acceptance of the wind impact mitigation report by the Planning Department

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
improvements or other wind-reducing features, such as wind screens. The project sponsor team shall implement as many of the design measures identified in the wind impact mitigation report as needed to reduce the proposed project's or project variants' potential to create a new wind hazard or exacerbate an existing wind hazard in publicly accessible areas of substantial pedestrian use to less-than-significant levels. The final wind impact mitigation report should not find that the project produces a net increase of the already identified wind hazard exceedances. The planning department shall approve the final list of wind reduction measures that the project sponsor team shall implement.				
Mitigation Measure M-WI-1(b): Additional Wind Testing				
If changes to the building design or massing are proposed after certification of the Final Environmental Impact Report, additional wind analysis may be required to confirm the modified design does not result in any 9-hour wind hazard exceedances and to minimize 1-hour wind hazard exceedances. If the planning department determines that the modified design could result in wind hazard criterion exceedances (for example, due to the removal of one or more wind reducing features), the project sponsor team shall retain a qualified wind consultant to prepare a wind analysis under the direction of the planning department. The wind analysis may require a wind tunnel test and shall identify wind reduction measures needed to avoid 9-hour wind hazard exceedances and to minimize 1-hour wind hazard exceedances.	Project Sponsor Team /qualified consultant	Prior to completion of the environmental review	Project Sponsor Team, and the Planning Department	Completion of and acceptance of the wind impact mitigation report by the Planning Department
GEOLOGY AND SOILS				
Mitigation Measure M-GE-6a: Inadvertent Discovery of Paleontological Resources				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
Worker Awareness Training - Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation, the project sponsor and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the Planning Department. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources. In addition, the project sponsor shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above. The project sponsor shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the ERO within five (5) business days of conducting the training. Paleontological Resource Discoveries - In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist as recommended by the Society of	Project Sponsor Team, construction contractors, at the direction of the ERO	Prior to construction commencement	Project Sponsor Team and the Planning Department	Submission of evidence of worker awareness training and distribution of alert sheet to the satisfaction of the Planning Department, including proper adherence to procedures if a resource is encountered

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphey et al. 2019). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO. The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery. If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall include measures to fully document and recover the resource of scientific importance. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities. The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The project sponsor shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO.				
Mitigation Measure M-GE-6b: Preconstruction Paleontological Evaluation and Monitoring Plan during Construction				
The project sponsor shall engage a qualified paleontologist to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the project site. The Preconstruction Paleontological Monitoring Plan would determine project construction activities requiring paleontological monitoring based on those may affect sediments with moderate sensitivity for paleontological resources. Prior to issuance of any demolition permit, the project sponsor shall submit the Preconstruction Paleontological Monitoring Plan to the ERO for approval. At a minimum, the plan shall include: 1. Project Description 2. Regulatory Environment – outline applicable federal, state and local regulations	Project Sponsor Team, construction contractors, and qualified consultant, at the direction of the ERO	Prior to construction commencement	Project Sponsor Team and the Planning Department	Completion of and acceptance of the Preconstruction Paleontological Evaluation by the Planning Department

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
3. Summary of Sensitivity Classification(s) 4. Research Methods, including but not limited to: 4.a. Field studies conducted by the approved paleontologist to check for fossils at the surface and assess the exposed sediments. 4.b. Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area. 4.c. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley. 5. Results: to include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known. 6. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include: 6.a. Avoidance: If a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation. 6.b. Fossil Recovery: If isolated small, medium- or large-sized fossils are discovered during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery. 6.c. Monitoring: Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction				

Adopted Mitigation Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Standard monitoring is typically used in the most paleontologically sensitive geographic areas/geologic units (moderate, high and very high potential); while spot-check monitoring is typically used in geographic areas/geologic units of moderate or unknown paleontological sensitivity (moderate or unknown potential). 6.d. Data recovery and reporting: Fossil and associated data discovered during soils disturbing activities should be treated according to professional paleontological standards and documented in a data recovery report. The plan should define the scope of the data recovery report. The consultant shall document the monitoring conducted according to the monitoring plan and any data recovery completed for significant paleontological resource finds discovered, if any. Plans and reports prepared by the consultant shall be considered draft reports subject to revision until final approval by the ERO. The final monitoring report and any data recovery report shall be submitted to the ERO prior to the certificate of occupancy.				

Continues on the next page.

Table 5: IMPROVEMENT MEASURES FOR THE POTRERO YARD MODERNIZATION PROJECT

MONITORING AND REPORTING PROGRAM[1]

Adopted Improvement Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
IMPROVEMENT MEASURES AGREED TO BY PROJECT SPONSOR TEAM				
TRANSPORTATION				
Improvement Measure I-TR-A: Construction Management Plan – Additional Measures				
As part of the project's construction management plan, the SFMTA and a private project co-sponsor and/or its contractors on SFMTA's behalf (referred to as project sponsor team) will require additional measures to further minimize disruptions to people walking and bicycling, transit, and emergency vehicles during project construction: The additional measures include: Carpool, Bicycle, Walk, and Transit Access for Construction Workers—Carpool, Bicycle, Walk, and Transit Access for Construction Workers—To minimize parking demand and vehicle trips associated with construction workers, the construction contractor will include as part of the Construction Management Plan methods to encourage carpooling, bicycle, walk, and transit access to the project site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from www.511.org, participating in emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers. Project Construction Updates for Adjacent Businesses and Residents— To minimize construction impacts on access to nearby residences and businesses, the project sponsor team will provide nearby residences and adjacent businesses with regularly updated information regarding project construction, including construction activities, peak construction vehicle activities, travel lane closures,	Project Sponsor Team, including SFMTA regulatory teams, and construction contractor	Prior to the issuance of construction permits; implementation ongoing during construction with construction updates provided weekly; Active Monitoring of Detours as needed	Project Sponsor Team, SFMTA (in its regulatory capacity)	Considered complete upon the submittal and approval of the Construction Management Plan to the SFMTA (in its regulatory capacity)

Adopted Improvement Measures	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
and parking lane and sidewalk closures (e.g., via the project's website). At regular intervals to be defined in the construction management plan, a regular email notice will be distributed by the project sponsor team that would provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.				
Improvement Measure I-TR-B: Driveway and Loading Operations Plan (DLOP)				
The project sponsor team (including joint development project sponsor as applicable) will be required to prepare and implement a Driveway and Loading Operations Plan (DLOP). The DLOP will be prepared by the private project co-sponsor, in coordination with the SFMTA, and submitted as part of the application for the first temporary occupancy permit. The DLOP will include provisions to manage loading activities and driveway operations associated with the below-grade onsite loading spaces; provisions for assessing on-street commercial and passenger loading supply and protocol for expanding on-street supply, if needed; provisions for trash/recycling/compost truck access and collection operations; provisions for residential move-in and move-out operations; provisions for scheduling Muni deliveries using the onsite loading facilities; and provisions for accommodating recurring deliveries such as UPS, Federal Express, and USPS within the onsite loading facilities. The intent of the DLOP is to reduce potential conflicts between passenger and freight loading and transit operations, and between passenger and freight loading activities and people walking and bicycling, and other vehicles in the project vicinity, as well as to maximize reliance on onsite facilities to accommodate freight loading demand.	Project Sponsor Team	Project Sponsor Team to submit Loading Management Plan to ERO prior to the issuance of any certificate of occupancy for the proposed project.	ERO, Project Sponsor Team or successor owner/ manager of residential building	Considered complete upon ERO approval of Loading Management Plan; Ongoing monitoring to continue indefinitely

Table 6: PUBLIC WORKS STANDARD CONSTRUCTION MEASURES FOR THE POTRERO YARD MODERNIZATION PROJECT

Public Works' Regulatory Affairs division will ensure the Standard Construction Measures are included in construction specifications and contracts. The planning department environmental monitoring team will confirm the public works standard construction measures have been incorporated into the final project agreement with the project sponsor team.

	MONITORING AND REPORTING PROGRAM[1]			
Adopted Public Works Standard Construction Measure	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring / Reporting Responsibility**	**Monitoring Actions / Completion Criteria**
PUBLIC WORKS STANDARD CONSTRUCTION MEASURES AGREED TO BY PROJECT SPONSOR TEAM				
Public Works Standard Construction Measure #1, Seismic and Geotechnical Studies (Geology and Soils)				
The project manager shall ensure that projects that may potentially be affected by existing soil, slope and/or geologic conditions at the project site will be screened for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site, and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.	Project Sponsor Team, construction contractors	Prior to construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon submission of geotechnical investigations, if applicable
Public Works Standard Construction Measure #2, Air Quality				
All projects will comply with the Construction Dust Control Ordinance. Major construction projects that are estimated to require 20 or more days of cumulative work within the Air Pollutant Exposure Zone must comply with the additional clean construction requirements of the Clean Construction Ordinance.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon submission of a Site-Specific Dust Control Plan for the review and approval of the Department of Public Health
Public Works Standard Construction Measure #3, Water Quality				
All projects will implement erosion and sedimentation controls to be tailored to the project site, such as fiber rolls and/or gravel bags around storm drain inlets, installation of silt fences, and other such measures sufficient-to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size,	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon Project Sponsor Team's enforcement of water quality considerations

Adopted Public Works Standard Construction Measure	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.				
Public Works Standard Construction Measure #4, Traffic				
All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. The measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Traffic control measures may include, but not be limited to, flaggers and/or construction warning sign age of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with SFMTA Muni Operations.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team; SFMTA Muni Operations, Public Works Regulatory Affairs	Considered complete upon the submittal and approval of the Construction Management Plan to the SFMTA
Public Works Standard Construction Measure #5, Noise				
All projects will comply with local noise ordinances resulting construction noise. Public Works shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields), locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such means.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon Project Sponsor enforcement of local noise ordinances

Adopted Public Works Standard Construction Measure	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
Public Works Standard Construction Measure #6, Hazardous Materials				
Projects that involve excavation of 50 cubic yards of soil in the Maher Zone will comply with the Maher Ordinance. Projects on sites that are not currently located in the Maher Zone but have the potential to contain hazardous materials in soil and/or groundwater will be referred to the Department of Public Health as newly identified Maher sites.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon Project Sponsor enforcement of Maher ordinance
Public Works Standard Construction Measure #7, Biological Resources				
Projects will comply with all local, state, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, Federal and State Endangered Species Acts, etc.). The project site and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. If biological resources are present, a qualified biologist will carry out a survey of the project site to note the presence of general biological resources and to identify whether habitat for special-status species and/or migratory birds is present. If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, having a qualified biologist conduct monitoring, and other such applicable measures. Tree removal will also comply with any applicable tree protection ordinance.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon Project Sponsor enforcement of biological considerations
Public Works Standard Construction Measure #8, Visual and Aesthetic Considerations, Project Site				
All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view, and on currently paved or previously disturbed areas, where possible.	Project Sponsor Team, construction contractors	Ongoing during construction	Project Sponsor Team, Planning Department, Public Works Regulatory Affairs	Considered complete upon Project Sponsor Team's enforcement of visual considerations

Adopted Public Works Standard Construction Measure	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on City-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with Public Works Bureau of Urban Forestry Policy and San Francisco Code. Project sites on non-City land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.				
Public Works Standard Construction Measure #9, Cultural Resources				
All projects that will alter a building or structure, produce vibrations, or include soil disturbance will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below. Soil is defined as native earthen deposits or introduced earthen fill. Soil does not include materials that were previously introduced as part of roadway pavement section including asphalt concrete wearing roadway base and subbase. *Archeological Resources.* The EP Archeologist has determined that Standard Archeological Measure III (Testing/Data Recovery) shall be implemented by Public Works to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project (see Attachment H: Public Works Archeological Measure III (Testing / Data Recovery)). 1. Public Works shall implement the EP Archeologist's recommendations prior to and/or during project construction consistent with Standard Archeological Measure III and shall consult with the EP Archeologist in	Project Sponsor Team, construction contractors	Prior to issuance of a construction permit	Project Sponsor Team, the EP Archeologist staff, Public Works and the ERO	Considered complete upon compliance with Standard Archeological Measure III (Testing/Data Recovery) requirements

Adopted Public Works Standard Construction Measure	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
selecting a qualified archeological consultant from the EP Archeological Resources Consultant Pool, as needed, to implement these measures. 2. Soil-disturbing activities in archeologically sensitive areas, as identified through the above process, will not begin until preconstruction archeological measures required by the EP Archeologist (e.g., preparation of an Archeological Testing Plan, Archeological Treatment Plan, and/or an Archeological Data Recovery Plan) have been implemented.				
Public Works Standard Construction Measure #9, Cultural Resources				
All projects that will alter a building or structure, produce vibrations, or include soil will be screened to assess whether cultural resources are or may be present disturbance and could be affected, as detailed below. *Historic (Built Environment) Resources*. Where construction will take place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, Public Works will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such buildings or structures are avoided. These measures shall require the development of a Construction Best Practices for Historical Resources Plan and a plan outlining the Construction Monitoring for Historical Resources Program to be reviewed and approved by CCSF Planning Department Preservation staff. If a project includes or is directly adjacent to historic buildings or structures susceptible to vibration (such as but not limited to unreinforced masonry, earthen construction, lathe and plaster, or fragile architectural ornamentation) as determined in consultation with CCSF Planning Department Preservation staff, Public Works will determine if vibrations associated with proposed construction	Project Sponsor Team, construction contractors	Prior to issuance of a construction permit	Project Sponsor Team, the EP Preservation staff, Public Works and the ERO	Considered complete upon compliance with requirements

Adopted Public Works Standard Construction Measure	Implementation Responsibility	Mitigation Schedule	Monitoring / Reporting Responsibility	Monitoring Actions / Completion Criteria
activities has the potential to cause damage to such buildings or structures. Generally, vibration below 0.12 inches per second peak particle velocity does not have the potential to damage sensitive buildings or structures. A vibration study may be necessary to determine if such vibration levels will occur. If Public Works determines in consultation with CCSF Planning Department Preservation staff that vibration damage may occur, Public Works will engage a qualified historic architect or historic preservation professional to document and photograph the preconstruction condition of the building and prepare a plan for monitoring the building during construction. The monitoring plan will be submitted to and approved by CCSF Planning Department Preservation Planner prior to the beginning of construction and will be implemented during construction. The monitoring plan will identify how often monitoring will occur, who will undertake the monitoring, reporting requirements on vibration levels, reporting requirements on damage to adjacent historical resources during construction, reporting procedures to follow if such damage occurs, and the scope of the preconstruction survey and post-construction conditions assessment. If any damage to a historic building or structure occurs, Public Works will modify activities to minimize further vibration. If any damage occurs, the building will be repaired following the Secretary of the Interior's Standards for the Treatment of Historic Properties under the guidance of a qualified historic architect or historic preservation professional in consultation with CCSF Department Preservation Planner.				

[1] *Definitions of MMRP Column Headings:*
Adopted Mitigation, Improvement or Public Works Standard Construction Measures: Full text of the mitigation measures, improvement measures or Public Works Standard Construction Measures copied verbatim from the final CEQA document.
Implementation Responsibility: Entity who is responsible for implementing the mitigation measures, improvement measures or Public Works Standard Construction Measures. In most cases this is the project sponsor and/or project's sponsor's contractor/consultant and at times under the direction of the planning department.
Mitigation Schedule: Identifies milestones for when the actions in the mitigation measure, improvement measure or Public Works Standard Construction Measure need to be implemented.

Monitoring/Reporting Responsibility: Identifies who is responsible for monitoring compliance with the mitigation measure, improvement measure or Public Works Standard Construction Measure and any reporting responsibilities. In most cases it is the Planning Department who is responsible for monitoring compliance. If a department or agency other than the planning department is identified as responsible for monitoring, there should be an expressed agreement between the planning department and that other department/agency. In most cases the project sponsor, their contractor, or consultant are responsible for any reporting requirements.
Monitoring Actions/Completion Criteria: Identifies the milestone at which the mitigation measure, improvement measure or Public Works Standard Construction Measure is considered complete. This may also identify requirements for verifying compliance.

SECTION 01 35 44 - HAZARDOUS BUILDING MATERIALS SCOPE OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Non-Profit Entity shall perform Hazardous Materials abatement, removal, and remediation before any demolition Work and for any disturbance of areas on the Project Site that contain Hazardous Materials.

B. This Section 01 35 44 includes the scope of work for abatement and/or removal of Hazardous Materials, including Hazardous Waste and contaminated materials, environmental training requirements, minimum qualifications to perform Work related to Hazardous Materials, applicable Laws, Project requirements, and handling procedures required as part of the D&C Work.

C. Many of the materials and items of equipment used to construct the improvements and facilities at the Project Site contain substances recognized by the State of California as being carcinogenic or reproductive toxins. Such hazardous, contaminated, and non-Hazardous Materials include, and are not limited to, Hazardous Materials, non-Hazardous Materials, soils, heavy metals, asbestos; serpentine rock (which may contain natural asbestos); soils with naturally-occurring asbestos; lead-containing paints and coatings; lead sheeting; mercury; debris, mold and fungi; bacterial/biological contamination. Materials that may be encountered include polychlorinated biphenyl (PCB) ballasts, mercury containing lamps; asbestos; lead and other Hazardous Materials.

D. No environmental or Hazardous Materials sampling or analysis shall be conducted without written permission from the SAR group within City Public Works Department. This does not include Non-Profit Entity's obligation for any personnel air monitoring of its employees.

E. ENVIRONMENTAL TRAINING REQUIREMENTS: Non-Profit Entity shall ensure all workers on the Project Site, including DB Contractors' workers. complete the environmental trainings listed below. Non-Profit Entity shall ensure that such workers have all necessary training certifications, and personal protective equipment (PPE) as required by applicable Law. Non-Profit Entity shall submit to the SAR group within City Public Works Department certifications or proof of the trainings, listed below, as a Submittal as per Section 02 80 13 Hazardous Building Materials Remediation.

1. Health and Safety training
2. HAZWOPER training
3. Cal/OSHA Competent Person training for the field supervisor overseeing activities that disturb asbestos, or naturally occurring asbestos (NOA) as per Title 8 CCR 1529.
4. Cal/OSHA asbestos training (for all trades who will come in contact and disturb asbestos or NOA.
5. Lead training (for all trades that will come in contact and disturb lead containing paints as per Cal/OSHA 1532.1 Lead in Construction standard)
6. Medical examination and blood tests (as warranted)
7. Respiratory protection (including current respirator fit test records)

8. Storm water pollution prevention awareness training to enable the Non-Profit Entity's personnel to comply with the Erosion and Sediment Control Plan.

9. Other training pertaining to the Work being conducted.

1.2 RELATED DOCUMENTS AND SECTIONS

A. Section 02 80 13 Hazardous Building Materials Remediation

1.3 SCOPE OF WORK – HAZARDOUS BUILDING MATERIALS

A. Non-Profit Entity is hereby notified that Hazardous Materials, including Hazardous Waste and contaminated materials, are present on the Project Site. Non-Profit Entity shall perform a survey of all Hazardous Materials on the Project Site.

B. Non-Profit Entity shall verify existing conditions and quantities of Hazardous Materials and shall comply with all applicable Laws when handling these materials.

C. Non-Profit Entity shall ensure that all abatement, removal, and remediation of Hazardous Materials is performed by a licensed abatement contractor under proper Cal-OSHA work procedures. The waste stream generated by abatement Work shall be classified, handled, containerized, labeled, manifested, transported, and disposed in compliance with applicable Laws.

D. In performing the Work, Non-Profit Entity shall verify if the Work will involve the disturbance, removal, abatement, remediation, clean up, transportation and disposal of Hazardous Materials. Non-Profit Entity is responsible for the removal, abatement, remediation, clean up, transportation, and disposal of any such environmentally-regulated Hazardous Materials.

E. Non-Profit Entity is responsible for verifying existing site conditions and quantities of Hazardous Materials. Non-Profit Entity shall comply with applicable Laws when handling these materials.

F. Lead-Related Removal: lead-containing and lead-based paint are present throughout the Project Site in buildings and on interior and exterior finishes. Non-Profit Entity shall ensure that all painted surfaces affected by the Work are removed in accordance with Cal/OSHA 1532.1 Lead in Construction standard. The lead-related D&C Work shall be coordinated with all demolition work.

G. The City has not verified that any paints, coatings, dusts, or other materials are not lead containing, therefore Non-Profit Entity shall ensure that all "trigger 1" construction activities, such as demolition of painted surfaces, manual scraping or sanding of painted surfaces, or renovations impacting painted surfaces and primed structural steel are completed using dust controls and personal protective measures in compliance with the Cal/OSHA Construction Lead Standard, 8 CCR 1532.1. All settled dust within ductwork, ceiling plenums, crawl spaces, attics, chases and non-regular housekeeping areas shall be treated as having measurable lead content requiring compliance with Cal OSHA 1532.1.

H. Other Regulated Materials: Non-Profit Entity shall remove or recycle the following materials:

1. PCB-containing Light Ballasts: Fluorescent fixtures and high intensity discharge lamps shall be treated as having a mix of PCB and non-PCB ballasts, requiring disposal of impacted suspect units as Hazardous Waste.

2. PCB-containing building materials.

3. Mercury, Cadmium, and/or Sodium-Containing Fluorescent Light Tubes/Bulbs: Fluorescent and mercury vapor lamps on the Project Site shall be treated as having mercury content requiring removal and recycling of quantities greater than 25 fixtures per day impacted by the Project's demolition or renovation activities.

4. Mercury-containing Materials: All mercury-containing thermometers, thermostats, and all mercoid switches shall be treated as mercury-containing, requiring removal, disposal as Hazardous Waste .

5. Tritium Exit Signs/emergency lighting: Non-Profit Entity shall ensure that tritium exit signs/emergency lighting are properly recycled or disposed per Federal and State Law.

6. Sewage, Sludge, and Bacterial Hazards Associated from Untreated Sewage: Non-Profit Entity shall ensure that pigeon wastes and leaking sewage lines are treated as a biohazard and Non-Profit Entity shall comply with Cal/OSHA blood borne pathogen safety requirements.

7. Mold: Surfaces affected by mold growth shall be removed or treated as recommended in guidance documents, such as "Guidelines on Assessment and Remediation of Fungi in Indoor Environments" (New York City Department of Health, April 2000), guidelines established in Bio aerosols Assessment and Control (J. Macher, Editor, ACGIH, 1999) and "Mold Remediation in Schools and Commercial Buildings" (U.S. Environmental Protection Agency, March 2001) and as otherwise noted in the Contract Documents.

8. Lead Sheeting:

9. Arsenic: Non-Profit Entity shall assume the following conditions exist on the Project Site:

    a. Treated timbers:

        1) Contain up to 3.9% of arsenic;

        2) Have a surface density measured at about 2,000 microgram/cm2 of arsenic;

        3) Show 4 - 25 microgram/cm2 loose arsenic based on wipe samples.

        4) Are considered Hazardous Waste.

1.4 ABATEMENT CONTRACTOR'S QUALIFICATIONS

A. Non-Profit Entity may perform abatement Work itself, if it possesses the necessary qualifications and licenses, or it may subcontract the abatement Work. In either case, Non-Profit Entity shall ensure that any entity that performs the abatement Work:

1. Submits to the SAR group within City Public Works Department current licenses and certifications for the specific type of abatement Work to be performed.

2. Submits to the SAR group within City Public Works Department a letter confirming compliance with current Laws, as outlined in the specifications listed in the paragraph below.

3. Submits to SAR group within City Public Works Department copies of any notices regarding safety and environmental violations received from regulatory agencies in the last 20 years.

4. Meets the following minimum qualifications

    a. Is a legally recognized entity capable of entering into contracts and holding a valid license in good standing with the State of California and the City and County of San Francisco. Complies with all City contracting requirements and possesses the necessary qualifications to conduct business in San Francisco.

    b. Holds a valid **Class B**, General Building Contractor's license issued by the Contractors State License Board (CSLB) of the State of California.

    c. Holds a valid **Class C-22**, Asbestos Abatement Contractor license issued by the CSLB of the State of California, in accordance with Title 16, Division 8, Article 3 of the Business and Professions Code.

    d. Possesses a valid State of California Contractors State License Board (CSLB) Certification **ASB (Asbestos Certification)** in accordance with the provisions of Division 3, Chapter 9 of the Business and Professions Code.

    e. Is a current **Asbestos Registrant** with the California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH), as required by Title 8 of the California Code of Regulations, Article 2.5.

    f. Possesses a valid **USEPA Lead Safe** Certificate to conduct lead-based paint renovation, repair and painting activities pursuant to 40 CFR Part 745.89 and fulfilling the requirements of the Toxic Substance Control Act (TSCA) Section 402.

    g. Possesses workers' documentation, medical records, and training required to perform the abatement Work.

    h. Has no less than five years of experience in abatement and/or removal of Hazardous Materials

B. Other Abatement Non-Profit Entity's Qualifications

    1. Before commencing any abatement Work, Non-Profit Entity shall submit to the City's Authorized Representative and SAR group within City Public Works Department a Hazardous Materials Management Plan (HMMP) in accordance with the requirements of this Section, and Section 02 80 13 Building Related Hazardous Materials Remediation.

    2. Non-Profit Entity shall submit to the SAR group within City Public Works Department current licenses and certifications for the specific type of abatement Work to be performed; copies of regulatory agencies notifications, abatement work plans, workers and competent person's documentation, waste disposal plan and documentation as required for the removal of the Hazardous Materials.

C. Project Safety Representative: In accordance with the requirements specific to this Section, listed below, and in Section 01 35 45- Health and Safety Criteria, Non-Profit Entity shall provide a qualified Project safety representative that reports to the Non-Profit Entity's superintendent. The Project safety representative shall be trained to identify, control, and manage the Hazardous Materials on the Project Site. The Project safety representative shall:

    1. Enforce safe work and hygiene practices in compliance with Non-Profit Entity's Health and Safety Program and Hazardous Materials Management Plan (HMMP)

    2. Advise Non-Profit Entity's, vendors, and visitors to the Project Site of potential hazards and minimum general requirements of the Non-Profit Entity's Health and Safety Program

3. Coordinate Non-Profit Entity's Work regarding Hazardous Material procedures and controls.

4. Establish and maintain restricted work areas.

5. Enforce proper use of personal protective equipment.

6. Communicate approved modified safety requirements to Project Site personnel as well as visitors to the Project Site.

7. Notify and coordinate with the City's Authorized Representative and The SAR group within City Public Works Department for the immediate assessment and remediation Work for unforeseen Hazardous Materials conditions discovered in the course of the Work.

8. Notify and coordinate signing of waste manifests with the City's Authorized Representative and Site Assessment and Remediation (SAR) group within City Public Works in a timely manner

9. Ensure Non-Profit Entity's personnel have proper training to perform the Work

D. Hazardous Materials Handlers: Only qualified persons may perform Hazardous Material- related Work. Non-Profit Entity shall ensure that all personnel who come into contact with, are exposed to, disturb, operate equipment or otherwise handle Hazardous Materials have appropriate hazard communication and required training, personal and medical monitoring, and are certified to wear appropriate personal protective equipment as required by applicable Laws. Special qualifications may be required depending on the Non-Profit Entity's means and methods.

E. For asbestos-related Work involving asbestos-containing material (ACM) equal to or greater than 100 square feet or 100 linear feet or affecting friable asbestos surfacing materials, thermal system insulation (TSI) and regulated asbestos-containing material (RACM), Non-Profit Entity or its Hazardous Materials abatement Non-Profit Entity shall:

1. Possess a valid asbestos handling license issued by the California State Contractors Licensing Board and a valid current certificate of registration for asbestos-related Work as issued by the California Department of Industrial Relations – Division of Occupational Safety and Health.

2. Ensure that all Work is completed under the on-site supervision of a "competent person" as defined by Federal OSHA under Regulation 29 CFR Part 1926.1101 and Cal/OSHA under 8 CCR 1529.

3. Ensure that all abatement workers have AHERA training with current annual eight-hour refresher training, annual medical exams for the use of respiratory protection, and a fit test of appropriate respirators every six months.

F. Lead Hazard Control Work: Non-Profit Entity shall ensure that only qualified persons with California Department of Public Health (CDPH) approved lead workers training, annual medical examinations and approval for the use of respiratory protection, and semi-annual fit testing of respirators under the direct supervision of a CDPH approved lead supervisor engage in Work defined under Cal/OSHA regulation 8 CCR 1532.1 affecting lead-based paints and lead construction hazards, including but not limited to:

1. Working in an environment where lead exposures exceed 30 micrograms per cubic meter (mg/m^3).

2. Controlling lead hazards, but not limited to, removal of loose and peeling lead-based paints, demolition and disposal of concrete-encased primed structural steel, removal of lead jacketed telephone cables and stripping of lead coatings from structural steel prior to torching or welding.

G. As required by Title 17, California Code of Regulations (CCR), Division 1, Chapter 8 "Accreditation, Certification and Work Practices in Lead-Related Construction," Article 1, Sections 35001 et al, and Article 16, Sections 36000 and 36100.Lead Hazard Work, Non-Profit Entity shall ensure that: all affected workers have lead awareness training, current medical examinations and approval for the use of respiratory protection, and current fit testing of respirators complying with Cal/OSHA regulation 8 CCR 1532.1 when affecting lead paints and lead construction hazards including:

1. Demolishing or salvaging structural items where lead or materials containing lead are present.

2. Removing or encapsulating materials containing lead.

3. Constructing, altering, repairing or renovating structures, substrates, or portions thereof, that contain lead or materials containing lead.

4. Installing of products containing lead.

5. Cleaning-up of lead contamination.

6. Transporting, disposing, storing, or containing lead or lead-containing materials on the site or other locations where construction and renovation activities are performed.

H. Polychlorinated Biphenyls (PCB) Related Work: Non-Profit Entity shall ensure that removal of non-leaking PSB-containing ballasts and transformers is completed by workers with PCB hazard-awareness training as verified by the Non-Profit Entity's Project Safety Representative. Removal of leaking or damaged PCB-containing ballasts, transformers, and oils shall be completed only by trained workers, wearing protective gloves and following safety procedures as outlined in the HMMP. Hazardous Waste shall be handled according to the U.S. Environmental Protection Agency's Standards 40 CFR 761.60 and 761.65, and 22 CCR Section 66699(b).

I. Mercury-Containing-Lamp-Related Work may be completed by workers with mercury hazard awareness training as verified by Non-Profit Entity's health and safety officer or superintendent.

J. Other Hazardous Materials-Related Work may be completed by workers with specific hazard-awareness training of the Hazardous Material in question as verified by the Non-Profit Entity's Project Safety Officer.

K. Contaminated Soils-Related Work including Underground Storage Tanks and CCA treated Wood: Non-Profit Entity shall ensure that workers have current 40-hour HAZWOPER training and 8-hour annual refresher training per regulation 29 CFR 1910.120, and 8 CCR 5192. Non-Profit Entity shall comply with the health and safety requirements, and the approved Site-Specific Hazardous Materials Management Plan (HMMP).

L. Bio-hazard Work: Non-Profit Entity shall ensure that Work areas contaminated with fecal matter and human excretions, along with needles and syringes and other materials potentially contaminated with infectious blood borne pathogens or other biohazards comply with the health and safety requirements and the approved in a Site-Specific Hazardous Materials Management Plan.

M. Mold and Fungi Remediation Work may be completed by workers with mold hazard awareness training as verified by the Non-Profit Entity's Project Safety representative.

N. Non-Profit Entity shall ensure that:

1. Hazardous Materials Haulers possess during the hauling of hazardous material, applicable federal, state, and local vehicle insurance requirements, valid driver's license, vehicle registration and licenses, and a current Class 1 Certification of Compliance from the California Highway Patrol affixed to each vehicle or container.

2. Hazardous Materials Haulers possess a Hazardous Substance Removal Certification granted by the State of California Department of Toxic Substances Control (510-540-3802) and other required certifications and insurance.

3. Drivers of Hazardous Materials hauling vehicles are informed about:

a. The nature of the material hauled.

b. Any recommended or required routes to and from the Project Site.

c. Applicable city street use regulations and requirements, and State of California Department of Transportation (Caltrans) codes, regulations and requirements.

d. The SAR group within City Public Works Department's requirements for proper handling and transportation of Hazardous Waste including mitigation controls and manifesting procedures.

e. The legal maximum loads for each vehicle.

1.5 REGULATORY REQUIREMENTS

A. Non-Profit Entity shall comply with the procedures of this Section, and applicable Law regarding the generation, management, characterization, removal, abatement, remediation, transportation and disposal of Hazardous Materials. Non-Profit Entity is solely responsible for identifying which apply. Examples of regulations that may apply include:

1. Resources Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq.

2. Regulations 40 CFR Part 260 et seq.

3. California Health and Safety Code, Division 20.

4. Regulations, and 22 CCR Section 66000 et seq.

B. For asbestos (building materials) hazards, comply with the applicable requirements of the following federal, State and local regulations and requirements:

1. For asbestos hazards: Non-Profit Entity shall comply with the applicable requirements of:

a. Cal/OSHA Construction Asbestos Standard, 8 CCR Section 1529.

b. BAAQMD Regulation 11, Rule 2 and Regulation 11 Rule 14.

c. Environmental Protection Agency NESHAP and AHERA regulations (40 CFR Part 763, as applicable).

d. Occupational Safety and Health Administration (inclusive of OSHA 29 CFR 1926.1101).

e. California Environmental Protection Agency (Cal/EPA) Title 22.

f. Other applicable federal, State, and local governmental Laws pertaining to asbestos-containing materials (ACM) and asbestos waste.

g. The Final Regulation Order of the California Code of Regulations (CCR) Title 17, Public Health, Section 93105, on Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations.

h. All other applicable Laws, regulations, rules, ordinances, guidance documents and regulatory clarification letters and memos related to asbestos, Asbestos-Containing Materials (ACM), Asbestos Containing Building Materials (ACBM), Asbestos Containing Construction Materials (ACCM), and asbestos-containing waste.

2. For Naturally Occurring Asbestos (NOA) in on-site soil and fill, refer to Section 02 81 10 – Management of Excavated Materials, and Non-Profit Entity shall comply with the applicable requirements of:

a. Cal/OSHA Construction Asbestos Standard, 8 CCR Section 1529.

b. Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (CCR 17, Section 93105).

c. Bay Area Air Quality Management District (BAAQMD) rules, permits, notification forms, and regulatory information regarding Naturally Occurring Asbestos (NOA).

d. Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California, Special Publication 124, California Geologic Survey .

e. Determination of Asbestos Content of Serpentine Aggregate, Method 435", California Air Resources Board .

f. Implementation Guidance Document, Air Resource Board Test Method 435, Determination of asbestos Content of Serpentine Aggregate- Field and Laboratory Practices: CARB Monitoring and Laboratory Division, Quality Management Branch, Quality Management Section .

g. Asbestos and Other Fibers by Phase Contrast Microscopy (PCM), NIOSH Method 7400 .

h. Asbestos by Transmission Electron Microscopy (TEM), NIOSH Method 7402 .

i. All other applicable Laws, regulations, rules, ordinances, guidance documents and regulatory clarification letters and memos related to Naturally Occurring Asbestos, asbestos, and Asbestos-Containing Materials (ACM), and asbestos-containing waste.

C. For lead hazards, Non-Profit Entity shall comply with the applicable requirements of the following federal, State and local Laws:

1. Cal/OSHA Lead in Construction Standard, 8 CCR Section 1532.1 , and Cal/OSHA Lead in Construction Standard (Fact Sheet) .

2. Cal/EPA Regulation 22 CCR Section 66000).

3. Federal Lead Standard for the Construction Industry, 29 Code of Federal Regulations (CFR) part 1926.62

4. California Department of Health Services (17 CCR Sections 35001 -35099).

5. Title 17, California Code of Regulations, Division 1, Chapter 8 Accreditation, Certification and Work Practices in Lead Related Construction.

6. Lead as a water pollutant:

   a. Federal Clean Water Act (CWA), 40 CFR part 427.

   b. California's Porter Cologne Water Quality Control Act.

7. Federal Safe Drinking Water Act (SDWA), 40 CFR parts 141-143.

8. Lead as a hazard to children: California's Childhood Poisoning Prevention Act, 17 CCR section 33001 et seq.

9. Lead as a waste:

   a. Federal Resource Conservation and Recovery Act (RCRA) of 1976,

   b. 40 CFR part 240 et seq.

   c. California's Hazardous Waste Control Law (HWCL), 22 CCR section 66260.1 et seq.

10. San Francisco Building Code (SFBC), Chapter 34, as required where there is disturbance to painted surfaces on the exterior of buildings or structures within the City and County of San Francisco.

11. Society for Protective Coatings Paintings Non-Profit Entitys' Certification Program (SSPC/PCCP) for the QP1 and QP2 Certifications.

D. Respiratory Protection: Non-Profit Entity shall assess potential exposures to Hazardous Materials and conditions and comply with Cal/OSHA Regulations included in 8 CCR Sections 1529, 1532.1, and 5144, ANSI Standard Z88.2 - "Practices for Respiratory Protection", and 29 CFR 1926.62 (f). Non-Profit Entity shall ensure that workers wear appropriate respiratory protection during lead, asbestos and any other hazardous Work, unless negative exposure assessment testing verifies that worker exposures are below the PEL or Action levels.

E. For PCB work: Non-Profit Entity shall comply with Cal/EPA Regulation 22 CCR Sections 66268.110 and 66508, and 40 CFR 761.

F. For universal waste, Non-Profit Entity shall comply with Cal/EPA Regulation 22 CCR Sections 66261.50 and 66273.8 (CCR Title 22, Division 4.5, Chapter 34). Examples of universal waste: batteries, fluorescent tubes (lamps), electronic devices (cell phones, computers, televisions), cathode ray tubes (CRTs), mercury wastes (thermometers and toys), and non-empty aerosol cans.

G. For wood treated with chemical preservatives, such as chromate copper arsenate (CCA) treated wood: Non-Profit Entity shall comply with the federal insecticide, fungicide, rodenticide Act (FIFRA) and by the California Department of Pesticide Regulation (DPR) and Department of Toxic Substances Controls (DTSC) Regulations or for the treated wood waste as per the Health and Safety Code (HSC) 25150.7 and 25150.

1.6 DEFINITIONS

A. Lead Abatement: as defined by the Department of Public Health for lead hazard work, includes any set of measures designed to reduce or eliminate lead hazards or lead-based paint, but excludes containment or cleanup. Abatement for lead is designed to permanently reduce or eliminate lead hazards for public (non-industrial) buildings or to last more than 20 years.

B. Asbestos-Containing Material (ACM) for the purpose of Cal/OSHA compliance: Any material that contains more than 1% asbestos by weight for the purposes of abatement, waste disposal and fiber controls specified under this Agreement.

C. Asbestos-Containing Material (ACM) for the purposes of CARB compliance under the ATCM: Any material that has an asbestos content of 0.25% or greater.

D. Asbestos Containing Construction Materials (ACCM): Defined by Cal OSHA 8CCR§341.6 as any manufactured construction material which contains more than 0.10 % asbestos by weight.

E. Asbestos Regulated Area: An area established where asbestos disturbance work is conducted and any adjoining area where disturbed material, debris and waste from such asbestos work occurs or is accumulated; and a work area within which airborne concentrations of asbestos exceed, or there is reasonable possibility that may exceed the permissible exposure limit (PEL).

F. Asbestos-Related Construction Work: Defined by Cal OSHA 8CCR§1529 as construction work that includes the following:

1. Demolition or salvage of structures where asbestos is present;

2. Removal or encapsulation of materials containing asbestos;

3. Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;

4. Installation of products containing asbestos;

5. Asbestos spill/emergency cleanup;

6. Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location where construction activities are performed;

7. Excavation and any disturbance of rock, soil, alluvium, or fill that may involve exposure to asbestos as a natural constituent that is not related to asbestos mining and milling activities;

8. Erection of new electric transmission and distribution lines and equipment, and alteration, conversion and improvement of the existing transmission and distribution lines and equipment; and

9. Routine facility maintenance.

G. BAAQMD: Bay Area Air Quality Management District (Air District) is a regional agency with jurisdiction over the demolition and renovation of buildings and structures that may contain asbestos, and the manufacture of materials known to contain asbestos. BAAQMD regulations must always be followed when removing asbestos or demolishing buildings. The Air District has been delegated the authority to enforce federal asbestos regulation. The Air District developed its own asbestos rule in 1976 that is more stringent than the federal rule.

H. Cumulative Renovations: A series of small (less than 30.8 m [100 feet] linear, 9.4 m^2 [100 ft^2] or 1 m^3 [35 ft^3]) renovations or removals of RACM performed during a calendar year at a single plant or facility which, taken together, would add up to a reportable amount under the provisions of BAAQMD Regulation 11, Rule 2.

I. Demolition: Defined by BAAQMD as wrecking, intentional burning, moving or dismantling of any load supporting structural member, or portion thereof, of a building, facility or ship. This includes, but is not limited to, any related cutting, disjointing, stripping or removal of structural elements.

J. Deteriorated Lead-Based Paint Hazard: painted areas with any of the following characteristics:

1. More than two square feet of deteriorated lead paint on interior components with large surfaces such as walls, ceilings, floors, and doors.

2. More than ten square feet of deteriorated lead paint on exterior components with large surfaces such as outside walls.

3. Deteriorated lead paint on more than ten percent of the total surface area of interior or exterior components with small surface areas such as windowsills, baseboards, trim, etc.

K. Lead Activities: Lead hazard evaluation, lead-related construction work, or any activity which disturbs lead-based paint, presumed lead-based paint, or creates a lead hazard

L. Lead Action Level: 30 micrograms per cubic meter based on an eight-hour time-weighted average (8 hr. TWA).

M. Lead-Based Paint (LBP): LBP is defined in Title 17, CCR Division1, Chapter 8, Section 35033 as any paint, varnish, shellac, or other surface coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by X-ray Fluorescence (XRF) or laboratory analysis, or 0.5 percent by weight (5,000 µg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis.

N. Lead--Based Paint Activities: EPA's Title IV of the Toxic Substances Control Act defines Lead-Based Paint Activities as the following, among others:

O. In any public building constructed before 1978, commercial building, bridge, or other structure or superstructure:

1. Identification of lead-based paint and materials containing lead-based paint

2. De-leading

3. Demolition

P. Lead-Based Paint Debris: Any component, fixture, or portion of a building coated wholly or partly with LBP. LBP debris can also be any solid material coated wholly or partly with LBP resulting from a demolition. Examples among many others include ceilings, crown molding, walls, chair rails, doors, door trim, floors, fireplaces, shelves, and radiators, jacketed telephone cables and other heating units.

Q. Lead-Based Paint Hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-Based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

R. In Title 17, California Code of Regulations (CCR), Division 1, Chapter 8, Section 35037, the California Department of Public Health (CDPH) adds to this definition by stating "disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure."

S. Lead-Based Paint Hazard Abatement: Any set of measures designed to permanently eliminate lead-based paint hazards according to standards established by the appropriate federal agencies. Abatement measures include the following activities:

1. Removal of lead-based paint and lead-contaminated dust,

2. Permanent containment or encapsulation of lead-based paint,

3. Replacement of lead-painted surfaces or fixtures, and

4. Removal or covering of lead-contaminated soil.

5. Removal also includes all associated preparation, cleanup, disposal, and post-abatement clearance testing activities, record keeping, and monitoring.

T. Lead-Based Paint Hazard Control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

U. Lead-Contaminated Dust: Surface dust containing an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. CDPH's threshold limits are as follows: 10 µg/ft^2 on interior floors, 100 µg/ft^2 on interior horizontal window surfaces, and 100 µg/ft^2 on exterior floors and exterior horizontal window surfaces. The most stringent criteria set forth by CDPH and/or the EPA shall apply to the work on this project

V. Lead-Containing Material: Any material, coating, substrate or product, which contains any measurable amount of lead, with the definition of lead being in accordance to OSHA's definition.

W. Lead Hazard: Title 17, California Code of Regulations (CCR), Division 1, Chapter 8, sections 35000 -36100, the California Department of Public Health (CDPH) defines: lead hazard as deteriorated lead-based paint, lead contaminated dust, lead contaminated soil, disturbing lead-based paint or presumed lead-based paint without containment, or any other nuisance which may result in persistent and quantifiable lead exposure.

X. Lead Permissible Exposure Limit (PEL): 50 micrograms per cubic meter based on an eight-hour time-weighted average (8hr. TWA).

Y. Lead Related Construction Work: Any construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup that, by using or disturbing lead-containing materials or soil, may result in significant exposure of adults and children to lead.

Z. Presumed Asbestos Containing Material (PACM) is thermal system insulation and surfacing material found in buildings constructed no later than 1980. PACM can be sampled to confirm whether it is ACM or not.

AA. Project Safety Representative (PSR): Qualified person directly responsible under Non-Profit Entity's Superintendent having the necessary training to be knowledgeable in the identification, control, and management of the hazardous materials/waste on site, and health and safety. See Section 1.4(C) above for further definition.

1.7 PROJECT REQUIREMENTS

A. Non-Profit Entity shall ensure that all Project personnel, including Non-Profit Entity's personnel, receive awareness training and orientation suitable to prevent inadvertent or unauthorized disturbance of Hazardous Materials that are present at the Project Site.

B. If Hazardous Material, including Naturally Occurring Asbestos (NOA), not identified on the survey report is discovered, Non-Profit Entity shall immediately notify the City's Authorized Representative and the SAR group within City Public Works Department both verbally and in writing.

C. Lead Hazards: All Construction Work that disturbs or affects intact paint and materials containing any detectable level of lead shall be performed by Non-Profit Entity under the Cal/OSHA Lead in Construction Standard 8 CCR 1532.1, Federal/OSHA's Lead Standard for the Construction Industry, Title 29 Code of Federal Regulations 1926.62, as well as all applicable Federal, State, and Local regulations. OSHA Lead in Construction Standard (29 C.F.R. part 1926.62 and title 8 CCR section 1532.1) requires awareness training and compliance on the part of an employer when there is any possibility that an employee could be exposed to lead as a result of his or her activities.

D. Non-Profit Entity is prohibited from starting Hazardous Material removal Work without approved Hazardous Materials Submittals as described in Section 02 80 13. Non-Profit Entity shall not conduct any sampling or analysis of suspected building materials without prior permission from the City as Regulator. Non-Profit Entity shall ensure that only qualified AHERA certified building inspectors for asbestos sampling and the California Department of Public Health (CDPH) certified Project monitors for lead assessment are allowed to conduct the sampling.

E. Pursuant to 29 CFR 1926.1101, Non-Profit Entity shall be deemed to exercise general supervisory authority over the Work covered by the standard, even though the Non-Profit Entity is not qualified to serve as the asbestos "Competent Person," as defined by the standard. As supervisor of the entire Project, the Non-Profit Entity shall ascertain whether any Non-Profit Entity is in compliance with the standard and shall require such contractor to come into compliance with the standard when necessary. Non-Profit Entity shall provide competent supervision by a designated Project Safety Representative (PSR) who can identify potential hazards at the Project Site and oversee implementation of appropriate protective measures to comply with all Cal/OSHA requirements applicable for Hazardous Materials.

F. Non-Profit Entity is responsible for the general supervisory authority over all Hazardous Materials activities, both incidental and primary, for the demolition, renovation and Construction Work under this Agreement.

G. Non-Profit Entity shall coordinate the activities that may have the potential to directly or indirectly impact Hazardous Materials. Work that may typically impact Hazardous Materials includes, as applicable and is not limited to:

1. Demolition.
2. Disturbance to any paints or coatings.
3. Torch cutting.
4. Welding.
5. Excavation.
6. Dewatering.
7. Shoring and Underpinning Work.

H. Non-Profit Entity shall not create any condition that may endanger the health and safety of City employee's and its representatives, facility staff, construction workers, site visitors, outside consultants, and the general public, including exposure to hazardous materials. If the City's Authorized Representative or City as Regulator observes such conditions, then the City' has the authority to suspend Work until Non-Profit Entity corrects the condition as provided.

I. Non-Profit Entity and its personnel shall have all the applicable hazard determination, exposure assessment, medical surveillance, engineering and work practice controls, respiratory protection, protective clothing and equipment, employee information and training, certifications, and monitoring program necessary to perform the Work and as required by Law and the Codes.

J. Clean up, remediation and disposal of any Hazardous Materials disturbed during this Work shall be the responsibility of Non-Profit Entity. The level of engineering control and medical monitoring required shall be based on the governing regulations of Cal/OSHA that are effective for the Project Term for the level and extent of hazards exposure at the site.

K. Non-Profit Entity shall maintain all Work areas within and outside the Project boundaries free from environmental pollution, which would be in violation of any federal, State or local Laws. Non-Profit Entity shall conduct Construction Work in strict compliance with the Contract Documents, including this Section and other related Sections.

1. The Project Schedule shall include work shifts for asbestos, lead-based paint, PCB ballast, PCB Building Materials, and other abatement as indicated.

L. As per Health and Safety requirements specified under Section 01 35 45, Non-Profit Entity is responsible for monitoring its employees and Contractors' and Sucontractors' employees for exposure to Hazardous Materials, either used in construction or otherwise uncovered or intrinsically present at the Project Site.

M. Non-Profit Entity shall not remove Hazardous Materials unless properly trained and certified for the handling of the Hazardous Materials encountered. (For example: workers trained and certified for Class I Asbestos Work with accordance to Title 8 CCR Section 1529).

1.8 WASTE HANDLING AND CHARACTERIZATION

A. Non-Profit Entity shall submit to the City as Regulator a Waste Management Plan (WMP) as specified under Section 02 80 13 Building Related Hazardous Materials Remediation.

B. Non-Profit Entity shall characterize and profile the waste to ensure proper handling, transportation and disposal. Non-Profit Entity shall handle, transport and dispose of the waste.

C. Non-Profit Entity shall segregate all waste streams. Non-Profit Entity shall accurately identify waste in accordance with all applicable Law and Codes. Individual waste containers must be labeled in accordance with Cal/OSHA labeling requirements.

D. Non-Profit Entity shall obtain and pay for all sampling and profiling analyses required for waste disposal. Non-Profit Entity shall ensure that California CDPH-accredited laboratories perform analyses. Non-Profit Entity shall submit results of such analyses to the City as Regulator prior to scheduling the waste off haul.

E. Non-Profit Entity shall ensure that all waste remains stored on the Project Site in a secured and designated waste storage area until results of waste characterization tests are available. Due to the time required to perform some analytical tests, this may require storage for up to 10 Working Days or more.

F. Non-Profit Entity shall ensure that all contaminated and non-friable waste is hauled off the Project Site using a bill of lading approved by the City as Regulator, to an approved treatment/disposal facility, in accordance with all applicable Federal, State and local regulations.

G. Non-Profit Entity shall provide and prepare a bill of lading and the non-hazardous waste manifest form for each shipment of material from the site. The bill of lading shall describe the contents of each truck carrying materials to the waste disposal site, including the name, address and phone number of the ultimate disposal site, the weight or yardage of the waste materials (as applicable), original location of the material, and an emergency phone number. Non-Profit Entity shall ensure that the hauler signs and dates the bill of lading indicating that he/she has accepted the load described in the manifest on that day. The City will sign the bill of lading before off haul and will retain the generator's copy. Non-Profit Entity shall provide copies of bills of lading accepted by the treatment/disposal sites to the City's Authorized Representative and City as Regulator. Non-Profit Entity shall follow manifesting procedures for the transportation and disposal of Class II material or lesser as specified this Section.

H. Non-Profit Entity shall provide and prepare a Hazardous Waste manifest for each shipment of Hazardous Material determined from the Project Site. The manifest shall describe the contents of each truck carrying materials to the waste disposal site, including the name, address, and phone number of the ultimate disposal site, the weight or yardage of the waste materials (as applicable), original location of the material, and an emergency phone number. Non-Profit Entity shall ensure that the hauler signs and dates the manifest indicating that it has accepted the load described in the manifest on that day. The Site Assessment and Remediation (SAR) group within City Public Works Department will sign the manifest before off haul and retain the generator's copy. Non-Profit Entity shall provide copies of manifests accepted by the treatment/disposal sites to the City. Non-Profit Entity shall follow Hazardous Waste manifesting procedures for the transportation and disposal of Hazardous Material.

I. Non-Profit Entity shall package, label, transport, and dispose of Hazardous Waste in accordance with applicable Cal/EPA regulations under Title 22 CCR and the California Health and Safety Code, including completion of the Uniform Hazardous Waste Manifest (UHWM). Information on the UHWM must include the quantity of waste in cubic yards and the name and address of the BAAQMD to comply with EPA Waste Shipment Record requirements. Non-Profit Entity shall follow the waste disposal; and manifesting requirements as specified this Section.

J. Non-Profit Entity shall provide and prepare the bill of lading, the non-hazardous waste manifest form, and the Hazardous Waste manifests forms by typing in a neat, correct, and legible fashion for signing by the generator. Non-Profit Entity shall notify the City's Authorized Representative and the SAR team within City Public Works Department at least 48 hours in advance of the time at which the manifest is ready to be signed.

K. Non-Profit Entity shall ensure that all lead-containing waste or debris, including, but not limited to, painted building components, ceramic tile glazes, jacketed telephone cables, respirator cartridges, disposable suits, and other associated debris generated during this work, is packaged for disposal as Hazardous Waste until waste characterization has been completed and analytical results are available. Waste shall be segregated into distinct waste streams according to the waste categories suggested in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, (a.k.a. "the HUD Guidelines"), dated June 1995 (Revised July 2012), which include the following:

1. Category I: Low Lead Waste – typically non-hazardous construction materials, filtered wash water, cleaned plastic sheeting, and other items that test as non-hazardous;

2. Category II: Architectural components, such as painted finished items like siding, doors, windows, trim, etc. which demonstrate intact or stabilized surface coatings;

3. Category III: Concentrated Lead Waste - typically hazardous materials such as paint sludge, paint chips vacuum debris, vacuum filters, and any waste testing hazardous; and

4. Category IV: Other lead-containing waste requiring characterization testing.

L. Disposal of intact lead-coated architectural or structural elements may occur as non-hazardous waste in accordance with Cal/EPA's and the Department of Toxic Substance Control's requirements.

M. Non-Profit Entity shall ensure that waste characterization for lead hazard content is performed in accordance with 22 CCR §66262, ET. seq., including using one or more of the following testing procedures, as required, and is manifested and properly disposed:

1. Total Threshold Limit Concentration (TTLC)

2. Waste Extraction Test (WET)

3. Toxicity Characteristic Leaching Procedure (TCLP)

4. SW 846

N. Miscellaneous Hazardous Waste Disposal. Non-Profit Entity shall comply with the following:

1. Disposing of PCB-containing ballasts in landfills is prohibited by Federal and State Law. Drums containing PCB ballasts and other PCB-contaminated materials must be disposed of, or otherwise treated, at an EPA-approved facility.

2. Ballasts with "Non-PCB" fluids, must be disposed of at a legally permitted disposal/recycling facility as assumed DEHP-containing ballasts.

3. Fluorescent lamps must be stored in packaging or containers that are designed to minimize breakage/damage during both storage and shipping. Containers shall be labeled as "Universal Waste – Spent Fluorescent Lamps" or "Universal Waste," as appropriate, and each container shall be marked with the date on which storage of said waste began.

4. Non-Profit Entity shall use a bill of lading or non-hazardous waste form that contains the following information when shipping fluorescent lamps to a recycler: name and address of generator, transporter, and recycler; number of lamps shipped; date of shipment and date of receipt by recycler; and obtain a dated signature of the receiving recycler. A copy of the bill of lading shall be submitted to the City's Authorized Representative and SAR group within City Public Works Department at abatement completion.

O. Universal Waste Disposal

1. Non-Profit Entity shall comply with the following universal wastes specific disposal procedures under 22 CCR 66273.10 through 66273.21:

a. Batteries, as described in section 66273.2, subsection (a);

b. Electronic devices, as described in section 66273.3, subsection (a);

c. Mercury-containing equipment, as described in section 66273.4, subsection (a);

d. Lamps, as described in section 66273.5, subsection (a) (including, but not limited to, M003 wastes);

e. Cathode ray tubes, as described in section 66273.6, subsection (a);

f. Cathode ray tube glass, as described in section 66273.7, subsection (a); and

g. Aerosol cans, as specified in Health and Safety Code section 25201.16.

2. Non-Profit Entity shall ensure that universal wastes are segregated and shipped for disposal following DOT shipping requirements in 49 CFR 171 through 180.

3. Universal Wastes can be shipped using a bill of lading to a Universal Waste Handler licensed under the requirements of 22 CCR 66273.

P. Asbestos Waste Disposal

1. A waste that is friable and contains asbestos over 1 percent is regulated as a California (Non-RCRA) hazardous waste under 22 CCR 66261.24**.** Non-Profit Entity shall characterize and profile asbestos-containing waste to determine its correct waste disposal classification.

2. Non-Profit Entity shall comply with the following requirements that apply to transportation and disposal of asbestos Hazardous Waste:

a. Packaging in sealed, leak-tight, non-returnable containers from which the fibers cannot escape following 40 CFR 61.150 or, in order to prevent breakage of larger items, in bulk containers lined with plastic sheeting and covered it with a tarp following 22 CCR 66263.23.

b. Labeling of the asbestos Hazardous Wastes shall follow 29 CFR 1910.1001, 29 CFR 1926.1101, and 8 CCR 5208.

c. Asbestos Hazardous Wastes shall be shipped using a registered hazardous waste hauler to landfills permitted to accept asbestos wastes.

d. d) Non-Profit Entity shall provide, prepare and submit to the City's Authorized Representative and SAR group within City Public Works Department a Uniform Hazardous Waste Manifest Form for asbestos Hazardous Waste shipments.

1.9 USE OF NON-HAZARDOUS WASTE MANIFEST FOR CLASS II MATERIAL OR LESSER

A. For the profiling of each waste stream, Non-Profit Entity shall fill out the waste acceptance profile form, set up an account, and obtain the waste profile number from the landfill provider.

B. For transportation and disposal of the waste, Non-Profit Entity shall provide and prepare for the City's Authorized Representative and City as Regulator a non-hazardous waste manifest form obtained from the landfill provider. The non-hazardous waste manifest form shall be completed for each vehicle carrying excavated material classified as California Class II non-RCRA waste, or of a lesser waste classification. Non-Profit Entity shall submit each non-hazardous waste manifest form to the SAR group within City Public Works Department for the generator's signature at least 72 hours in advance of the day of the off-haul with an estimate of the number of loads scheduled for off-haul. The non-hazardous waste manifest form shall contain the following information before providing the final copy for the City as Regulator to sign:

1. Name, address and phone number of the generator, Project name, and Specification Section number.

2. Non-Profit Entity's billing information

3. Name, address and phone number of the transport company.

4. The Name, address, and telephone number of the receiving facility i.e., disposal facility.

C. The City will not be responsible for off haul delays if Non-Profit Entity does not notify the City in a timely manner to sign the non-hazardous waste manifest forms.

D. Within 30 days of the off haul, Non-Profit Entity shall submit to the City's Authorized Representative and SAR group within City Public Works Department with copies of each completed non-hazardous waste manifest Form (with the landfills signature).

E. Non-Profit Entity shall furnish all labor, materials, equipment, and incidentals required to transport those materials identified as non-hazardous waste for the purpose of disposal.

F. Non-Profit Entity shall prepare waste characterization and profiling information documenting the non-hazardous nature of the category of waste.

G. By the end of the workday, Non-Profit Entity shall prepare bills of lading for each vehicle for all excavated material loads classified as non-hazardous waste (California Class II or lesser), for the purpose of off-site transportation and disposal purposes. The bill of lading shall be designed to contain the following information:

1. Name, address and phone number of the transport company

2. Name of the driver, a dated signature from the driver, vehicle license number, trip number.

3. Weight as recorded at the landfill of waste excavated material.

4. Date of transport.

5. Name, address and phone number of the receiving facility i.e., disposal facility. A dated signature from the receiving facility.

6. Name, address and phone number of the generator, along with the Contract No. and Project name.

H. A copy of each bill of lading and a certified weight ticket is an indication of the weight of the shipment, which has been received at the disposal facility. Non-Profit Entity shall maintain files of all bills of lading and furnish such information to the City if requested.

I. Non-Profit Entity shall ensure that the transporter signs and dates the bill of lading indicating that the transporter accepted the load described in the bill of lading on that day for that particular trip.

1.10 HAZARDOUS WASTE MANIFESTING PROCEDURES FOR CLASS I MATERIAL

A. Non-Profit Entity shall furnish all labor, materials, equipment, and incidentals required to transport those materials identified as Hazardous Waste for the purpose of disposal.

B. Non-Profit Entity shall comply with all applicable regulatory requirements listed as well as other applicable federal, State, and local lLaws, codes, and ordinances, which govern or regulate transportation of wastes (including DOT-HM 181 in accordance with 49 CFR 172).

C. Non-Profit Entity shall ensure that all packing, labeling, transporting, and disposing of Hazardous Waste complies with regulations under 22 CCR, including providing and completing the Uniform Hazardous Waste Manifest Form.

D. Non-Profit Entity shall follow applicable regulations under 40 CFR Part 263, and 22 CCR Section 66263, "Standards Applicable to Transporters of Hazardous Waste," including licensing, manifest system, record keeping, and discharges.

E. Non-Profit Entity shall ensure that all material classified as Hazardous Waste (Federal Class1 RCRA and California Class1 non-RCRA wastes only) is hauled off using a licensed Hazardous Waste transporter and the uniform Hazardous Waste manifest form (DTSC Form 8022A and/or EPA Form 8700-22 a.k.a. the manifest).

F. Preparation and handling of waste manifests

1. Non-Profit Entity shall provide and prepare the waste manifests and landfill profiles for each shipment of Hazardous Wastes from the site. Non-Profit Entity is hereby notified that Hazardous Waste manifest, waste profiling, and landfill service agreements have to be prepared and have to be approved by the landfill in advance of the off-haul. Non-Profit Entity shall consult with the SAR group within City Public Works Department for local requirements in filling out the forms.

    a. The manifest prepared by the Non-Profit Entity shall describe the contents of each truck carrying materials to the waste disposal site, including the weight of the waste materials.

    b. The City as Regulator will provide a hazardous waste generator identification number for use on the manifest. Non-Profit Entity shall provide the State Transporter identification number and telephone number.

    c. Non-Profit Entity shall ensure that the licensed transporter also signs and dates the manifest indicating that it has accepted the load described in the manifest on that particular day.

    d. Only a DOT Certified City employee (and not Non-Profit Entity) will sign the manifest for the “generator” of the waste.

2. Non-Profit Entity shall notify the SAR group within City Public Works Department and the City ’s Authorized Representative 72 hours prior to off-haul of all excavated material. Off-haul shall occur between the hours of 8:00 a.m. and 4:30 p.m. Monday through Friday (excluding City holidays).

3. The SAR group within City Public Works Department will sign and keep the generator's copy of the manifest and give the remaining copies to the licensed transporter.

4. The licensed transporter shall carry the hazardous waste manifest with each truckload using the traffic control approved routes for off haul.

5. Within 2 days of its return, Non-Profit Entity shall provide the SAR group within City Public Works Department with the completed waste manifest. The completed waste manifest shall be certified by the receiver of the waste shipment, confirming that the shipment was received at the waste treatment or disposal facility designated in Non-Profit Entity's bid, and certifying the weight of the shipment.

6. Should any waste manifest not be returned within 35 days of shipment, Non-Profit Entity shall initiate follow-up, shall document such follow-up effort in writing with an Exception Report in accordance with 40 CFR 262.42 and/or 22 CFR 66262.42, and shall provide a copy to the SAR group within City Public Works Department and the City ’s Authorized Representative.

G. Mandatory City Information for the Manifest

1. Non-Profit Entity shall use the following information for preparing a manifest form:

    a. Manifest Item 1: Generator’s US EPA ID Number for Project: CAD982008120

b. Manifest Item 3: Emergency response Phone: A 24 hour phone line shall be provided by Non-Profit Entity

c. Manifest Item 5:

1) Generator's Name and Mailing Address:
City and County of San Francisco
Department of Public Health/BEHM
1390 Market St., Suite 210
San Francisco, CA. 94102

Generator's Site Address:
City and County of San Francisco
To be provided by the City

d. Manifest Item 14: The following information is mandatory:

1) Name of Project

2) Project Manager

3) Project Manager Phone Number #

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 45 - HEALTH AND SAFETY CRITERIA

PART 1 - GENERAL

1.1 SUMMARY

A. Comply with legal and regulatory requirements applicable to the health and safety of persons during the performance of the Work and at the Project Site.

B. **Work on the Project Site may commence only after the City accepts the Project's Health and Safety Plan (HASP).**

C. Non-Profit Entity shall be solely responsible for:

1. Complying with the terms of this Section.

2. Developing, submitting, implementing, maintaining, and enforcing a site-specific Health and Safety Plan (HASP).

3. Posting all OSHA-required notices and establishing a safety program for the Work.

4. Complying with all applicable Cal/OSHA training, safety device, reporting, Work performance requirements.

5. Determining and complying with all applicable health and safety requirements, in accordance with applicable Laws.

6. Determination and implementation of construction means, methods, techniques, sequences, and procedures, including all safety precautions, training and programs taken in connection with the Work, as well as coordinating all portions of the Work.

7. The health and safety of Non-Profit Entity's employees, Non-Profit Entity's, and visitors as set forth in applicable Laws.

8. Implementing, maintaining, and enforcing all safety precautions and programs concerning the Work.

9. Conducting air monitoring at the Project Site for Non-Profit Entity's personnel and Non-Profit Entity's personnel, as required by applicable Laws. The City as Regulator may conduct ambient air monitoring as it deems necessary.

10. Payment of all fines, penalties or damages that result from Non-Profit Entity's failure to comply with applicable health and safety Laws.

D. The health and safety requirements set forth in this Section are not a comprehensive list of safety requirements that may apply to Work. And, some of the specified requirements may not apply to the Work, depending on the type and scope of the Work.

E. The City as Regulator will neither assume the administration of nor direct, control or otherwise assume any responsibility for the implementation and enforcement of the Non-Profit Entity's health and safety program.

F. Non-Profit Entity shall be solely responsible and shall assume all liability for compliance with the safety orders, regulations, and requirements of:

1. Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.)

2. Construction Safety Orders (8 CCR, subchapter 4 et seq.)

3. Federal OSHA.

4. Cal/OSHA.

5. California Public Utilities Commission (CPUC).

6. State of California Public Utilities Commission, General Order No. 172, Rules and Regulations Governing the Use of Personal Electronic Devices by Employees of Rail Transit Agencies and Fixed Guideway Systems.

7. The State of California Wireless Communications Device Law (effective January 1, 2009) makes it an infraction to write, send, or read text-based communication on an electronic wireless communications device, such as a cell phone, while driving a motor vehicle.

8. California Vehicle Code.

9. Local regulations pertaining to Work practices, protection of workers and visitors to the site.

G. Nothing contained in this Agreement shall relieve Non-Profit Entity, or any Non-Profit Entity or Supplier, from the obligations set forth above and obligations as required by applicable Laws. If a provision of this Section conflicts with any applicable provision of this Agreement or any federal, state, or local safety regulations, the more stringent requirements that maintain a greater level of safety shall apply.

H. Ensure all tiers of field personnel, employees, agents, visitors and Non-Profit Entity's:

1. Are provided the proper notifications, training, and procedures as required by the Project's Health & Safety Plan, including but not limited to the handling of unidentified Hazardous Materials.

2. Follow safe practices and minimize exposure when dealing with unanticipated and unidentified Hazardous Materials.

3. Minimize potential risks during Project construction by having all construction personnel follow the Project's Health & Safety Plan.

4. Provide and maintain personnel safety training and medical examinations in accordance with all applicable Law.

I. Conduct any required personal air monitoring of its workers, at its own expense Non-Profit Entity shall be responsible for providing its employees and visitors with all levels of personal protective equipment (PPE). Non-Profit Entity shall be responsible for providing its employees and visitors with all levels of training and PPE, including personal air monitoring if required. This includes areas where hazardous and contaminated soils and waste is encountered.

J. Non-Profit Entity shall have considered the productivity losses, if any, arising from the use of respirators and PPE.

1.2 JOB CONDITIONS

A. Performance of the Work involves working in environments that may be hazardous, contaminated, and non-hazardous. Serpentinite and other ultramafic rocks that contain naturally occurring asbestos may be present within earthen materials at the Project Site. Work that disturbs on-site rock and soil shall be performed under Cal/OSHA Class II procedures, as required by Cal/OSHA regulations (CCR Title 8 § 1529, asbestos in construction).

B. Such hazardous, contaminated, and non-hazardous environments include, but are not limited to; Hazardous Materials, non-hazardous materials, soils, groundwater and storm water, heavy metals (including lead), asbestos, serpentinite and other ultramafic rock that contains naturally occurring asbestos, respirable crystalline silica, lead containing paint and building materials, petroleum hydrocarbons, polynuclear aromatic hydrocarbons, organic compounds, railroad ties, sewage, sludge, debris, grit, sewer gases, oxygen deficiency, bacterial/biological contamination, odors from petroleum hydrocarbons, and other volatile/semi-volatile organic compounds and confined spaces.

C. Construct/finish, and at all times maintain satisfactory and substantial ramping, guard rails, warning flags, and signs at appropriate heights, temporary chain link fencing, solid fencing, railings, barricades, steel plates or bridging as applicable at all openings, obstructions, or other hazards in streets, sidewalks, pedestrian pathways affected by construction. All such barriers shall have adequate warning lights as necessary or required for public safety. Divert traffic by use of traffic cones, barriers, flagmen, flags, and signs adequate to conditions at the Project Site and task at hand. All temporary and permanent safety features shall be installed before beginning commencing Work at the Project Site.

D. Lead Hazards: Perform all Work that affects intact paint with any level of lead , at minimum, in accordance with the Cal/OSHA Lead in Construction Standard 8 CCR 1532.1 and other applicable Laws.

E. Work in this Agreement may include, but is not limited to, the following activities that may pose safety and health hazards to Non-Profit Entity:

1. Working around live, high voltage lines and wires, switches, moving vehicles and other potential hazards specific to a City yard, facility, or operating rail line.

2. Working around live utilities.

3. Entering or working in confined spaces.

4. Working around and inside shafts.

5. Working within an underground excavation and construction environment using mechanized equipment and structural temporary shoring support equipment.

6. Working within an underground tunnel environment using mechanized equipment.

7. Working with soils that may be hazardous or contaminated, or both.

8. Working around and in open trenches.

9. Working in spaces or areas where employees may be exposed to asbestos and lead.

10. Welding, painting, or other potentially hazardous Work, or working in the vicinity of such activities.

11. Working in a public right-of-way with vehicular traffic moving around or through the Project Site.

12. Working in rail right of way with light rail vehicles moving around and through the Project Site.

F. Protect the public from hazards including surface irregularities, un-ramped grade changes in pedestrian sidewalks or walkways, and trenches or excavation in roadways. Ensure safe routing of vehicular and pedestrian traffic around the Project Site, in compliance with American's with Disabilities Act (ADA) requirements.

1.3 SUBMITTALS

A. Non-Profit Entity shall submit to the City the following Submittals no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier. No construction Work shall start prior to City acceptance of the submittals listed below. Each Submittal listed below shall be a separate document and shall not combined within one another.

1. Site-specific Health and Safety Plan (HASP) prepared, signed and stamped by a Certified Industrial Hygienist (CIH).

2. Non-Profit Entity's Injury and Illness Prevention Programs (IIPP) and Code of Safe Practices (CSP), in accordance with the California Code of Regulations (CCR), Title 8.

3. Templates for all safety forms and reports:

   a. The Project Safety Representative's (PSR) daily inspection form shall accommodate twice daily inspections of their field work area(s) covering date, work area checked, employees present in the work area, PPE, work equipment being used in each area, workplace conditions, physical facility safety, and employee work practices. The form shall also accommodate any deficiencies and corrective actions.

   b. The Safety Meeting Attendance sheet of the "toolbox" safety meetings conducted per CAL/OSHA standards.

   c. Activity Hazard Analysis (AHA) or Job Hazard Analysis (JHA).

   d. Incident or Near-Miss Incident Investigation Reports.

   e. Corrective Actions Report.

   f. Project Site Visitor Policy Form

4. Completed Activity Hazard Analysis (AHA) or Job Hazard Analysis (JHA) submitted with the HASP using the AHA/JHA template for all significant activities and tasks with a high-risk potential, describing the job steps, hazards associated with each job step, and the controls used to remove or minimize the associated hazards

5. SDS (Safety Data Sheet) for all chemicals and other hazardous materials used in the Work.

6. If Serpentine is present Non-Profit Entity shall have Cal/OSHA 40-hour asbestos training for the competent person overseeing Serpentine/ Naturally Occurring Asbestos (NOA) disturbance activities and managing personal air monitoring for asbestos.

B. Experience Statement. Non-Profit Entity shall submit to the City no later than 10 days prior to the start of construction Work the qualifications and experience of the it's Project Safety Representative (PSR) as specified in this Section 01 35 45 – Health and Safety Criteria.

1. Documentation and Certification (current and valid) of the Project Safety Representative (PSR):

    a. The name of the designated Project Safety Representative (PSR).

    b. OSHA Certified 30-Hour Construction Training.

    c. The 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program.

    d. First Aid/CPR certification/training within the past two years

    e. Cal/OSHA 40-hour asbestos training for the Competent Person overseeing NOA disturbance activities and managing personal air monitoring for asbestos.

    f. Documentation demonstrating a minimum of three (3) years recent experience in conducting and supervising safety and health programs on construction projects similar to the Work of this Contract.

C. Non-Profit Entity shall maintain the following throughout the course of construction and provide to the City immediately upon request.

1. Daily inspection reports (as per Part 1.7 of this Section) signed by the PSR documenting twice daily inspections of their field work area(s) covering date, time visited, work area checked, employees present in the work area, PPE, work equipment being used in each area, workplace conditions, physical facility safety, and employee work practices. Any deficiencies and corrective actions shall also be documented.

2. Records of topics and safety meeting attendance sheet of the “toolbox” safety meetings conducted per CAL/OSHA standards.

3. Incident or Near-Miss Incident Investigation Reports and Corrective Action Reports – Submitted to the City’s Authorized Representative within 24 hours of the Project Incident or Near-Miss Incident.

4. Final Incident or Near-Miss Incident Investigation Reports and Final Corrective Action Reports – Submitted to the City’s Authorized Representative within 48 hours of the Project Incident or Near-Miss Incident.

5. HASP modification requests, and approved modifications to the appended HASP – Submitted to the City for review (if applicable).

6. Respiratory Protection Program, records and documentation (if applicable to the Work).

7. Hot Work permit (if applicable to the Work).

8. IIPP and CSP modification requests and approved modifications to the appended IIPP and CSP.

9. OSHA’s Form 300A “Summary of Work-Related Injuries and Illnesses” annual form. (Non-Profit Entity shall submit the Form 300A each year and whenever it is updated).

D. Upon receiving a written request from the City, Non-Profit Entity shall submit to the City any document relating to health and safety within five (5) Days from the date of such request.

1.4 REFERENCES

Work performed shall be consistent with the following guidelines and references and in compliance with all applicable regulations and standards, including those listed below. In the case that these requirements are conflicting, the one which offers the greatest level of safety shall be followed.

A. California Code of Regulations (CCR), Title 8

   1. Industrials Relations

   2. Construction Safety Orders

   3. General Industry Safety Orders

B. Cal/OSHA Occupational Safety and Health Administration (OSHA) Regulations.

   1. CCR Title 8 Standards (All)

   2. CCR Title 8 Tunnel Safety Orders (8403-8552)

C. National Institute for Occupational Safety and Health (NIOSH) Publications.

D. U.S. Environmental Protection Agency (USEPA) Publications.

E. American Conference of Governmental Industrial Hygienists (ACGIH) Publications.

F. Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.).

G. Code of Federal Regulations (CFR), Title 29 – Labor.

H. Federal Railroad Administration Roadway Protection Rule (49 CFR Part 214C).

I. State of California, Health and Safety Code.

J. California Department of Industrial Relations, DOSH Mining and Tunneling Unit, Underground Classification dated March 16, 2009.

K. State of California, Public Utilities Commission, General Order No. 95, “Rules for Electric Line Construction”.

L. State of California, Public Utilities Commission, General Order No. 128, “Construction of Underground Electric Supply and Communication System”.

M. State of California, Public Utilities Commission, General Order No. 172, “Rules and Regulations Governing the Use of Personal Electronic Devices by Employees of Rail Transit Agencies and Fixed Guideway Systems”.

N. State of California, Public Utilities Commission, General Order No. 175-A, “Rules and Regulations Governing Roadway Worker Protection Provided by Rail Transit Agencies and Fixed Guideway Systems”.

O. Bay Area Air Quality Management District (BAAQMD) Regulations.

P. California Air Quality Board (CARB) Regulations.

Q. San Francisco Health Code.

1.5 HEALTH AND SAFETY PLAN (HASP)

A. Non-Profit Entity shall submit a Site-specific Health and Safety Plan (HASP) in accordance with this Specification, CFR Title 29, CCR Title 8 and other applicable regulations, which shall cover all aspects and scope of Work. The HASP shall remain in effect for the term of this Agreement and a copy of the HASP must always be on-Site.

B. Non-Profit Entity's Site-specific HASP shall set forth the policies and procedures to be followed by all Non-Profit Entity personnel at the Site. The HASP shall describe the safety requirements for the Work, and the means and methods by which Non-Profit Entity will implement and enforce those safety requirements. The HASP shall describe, in detail, the protocols necessary for the identification, evaluation, mitigation and control of all hazards associated with the Work and each task performed by Non-Profit Entity and all Non-Profit Entity's. The HASP shall identify Non-Profit Entity' Project Safety Representative (PSR) responsible for Project Site safety and enforcing safe practices in performing the Work. Non-Profit Entity's site-specific HASP shall describe the responsibility for employee and public safety of Non-Profit Entity's representatives who control each phase of the operations and shall set forth in writing the policies and procedures to be followed by all Non-Profit Entity personnel. Non-Profit Entity HASP shall establish, in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with each task performed by Non-Profit Entity and lower tier Non-Profit Entity's.

C. The HASP shall be prepared, signed, and stamped by a Certified Industrial Hygienist (CIH). The HASP shall also be reviewed and signed by the Project Safety Representative (PSR), whose review shall be limited to general scope and completeness. Non-Profit Entity shall always be solely and entirely responsible for the safety of the Project Site and its personnel, Non-Profit Entity's personnel, persons working at or visiting the Project Site (including City representatives, employees and consultants), and persons passing through the Construction Area. Non-Profit Entity shall be solely responsible for the content, implementation and enforcement of its HASP. Non-Profit Entity shall not perform any Work at the Project Site until the HASP has been submitted to and accepted by the City.

D. The City will not review the HASP for its content, nor will the City be liable for Non-Profit Entity's failure to have an adequate HASP or implement it. Submission to and receipt of the HASP to the City and regulatory agencies neither constitutes to the legality of the HASP nor does it incur liability. Submission, acceptance, and receipt of the HASP to the City, or any review of the HASP by the City, shall not be construed as approval of the adequacy of Non-Profit Entity's PSR, Non-Profit Entity's HASP or any safety measures taken in or near the construction site.

E. Any changes or modifications to Non-Profit Entity's HASP must be signed by Non-Profit Entity's PSR and submitted to the City. The modification shall be appended to Non-Profit Entity HASP. All personnel working on the Project Site shall be fully informed of the modifications of the HASP and any required actions arising from those HASP modifications before performing any of the Work that mat be impacted by those modifications.

F. The HASP shall be divided into two parts. Part One shall address the Environmental Health aspect of safety. Part Two shall address Construction Safety.

G. Part One of HASP - Environmental Health:

1. Identification and description of the responsibility of those individuals who control each phase of operations and are responsible for employee and public safety. The HASP shall set forth in writing the policies and procedures to be followed by all personnel. The HASP shall include the designation and resume of an overall Project Safety Representative (also referenced as health/safety officer). The PSR shall have full authority to correct any unsafe conditions at the Project Site or unsafe means or methods of performing the Work. The PSR shall have the authority to stop any construction activity or modify Work

practices, means or methods that do not accord with the HASP or that are necessary to protect workers, property, and the surrounding community. This requirement shall apply throughout the term of this Agreement and is not limited to working hours.

2. Hazard Communication Plan: Information identifying and delineating all workplace hazards that has been identified or is generally associated with the proposed Work phases and how this information is communicated to employees (e.g., tailgate/toolbox safety meetings, monthly safety meetings, and daily job briefings). Hazardous material communication standards can be found in 29 CFR 1910.120 & 8 CCR 5194. Hazardous waste information can be found in 29 CFR 1910.1200 & 8 CCR 5192. Local hazardous material/waste information can be found in Articles 21, 21A, 22 and 22A of the San Francisco Health Code.

3. Mitigation measures to identify, monitor, and control worker and general public exposure to any identified hazard. Non-Profit Entity shall determine the need to conduct and monitor its personnel for contaminant exposure to maintain the proper level of personal protection, including the action level.

4. Personnel: Provision of enough personnel properly trained to handle, remove, excavate and dispose of hazardous waste and contaminated waste that may be encountered or generated by the Work. The HASP shall specify the general training required for all Non-Profit Entity personnel, and any specialized training required for personnel identified to manage and/or handle hazardous materials, including but not limited to:

    a. Asbestos training that meets the Cal/OSHA Work Activity Level for naturally occurring asbestos (NOA) as per the Cal/OSHA Construction Asbestos Standard, 8 CCR 1529, all applicable Sections and Section 1529.

    b. Lead, petroleum hydrocarbons, volatile and semi-volatile organic compounds (VOC's and SVOC's) awareness training.

    c. The 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program.

    d. It's associated 8-hour refresher training in accordance with 29 CFR 1910.120, and 8 CCR 5192.

    e. Respiratory program in accordance with 29 CFR 1910.134 and 8 CCR 5144.

    f. Respirable Crystalline Silica OSHA Regulation in accordance with 29 CFR 1926.1153

    g. Other Site-specific or Project specific hazards requiring safety training.

5. This training shall be required for all Non-Profit Entity and Non-Profit Entity personnel who will encounter or operate equipment that handles contaminated materials. The HASP shall include records establishing the subject matter, dates, tines, and attendees of all safety trainings. Non-Profit Entity shall maintain training records as required by Cal-OSHA and applicable regulations.

6. NOTE: Cal/OSHA regulations are triggered when asbestos is present in any amount. Non-Profit Entity shall meet its obligations under CCR Title 8, Section 1529. The regulation requires monitoring to determine exposure levels, wet methods, respirators and protective clothing, controlled access to the work area, and similar precautions associated with asbestos work regardless of the origin of the asbestos. Use of a competent person to oversee the work may also be necessary. Non-Profit Entity shall

utilize an experienced Certified Industrial Hygienist (CIH) and a Professional Geologist (PG) to assist it with this work.

7. Requirements of Non-Profit Entity and Non-Profit Entity's for implementing the following:

    a. Medical surveillance programs. Non-Profit Entity is responsible for providing medical examinations and maintaining medical records of personnel.

    b. Code of Safe Practices and Injury and Illness Prevention Programs (IIPP), i.e., SB 198, 8 CCR and CAL/OSHA, GISO 3203, Section 5192 and 1509.

    c. Personnel air monitoring according to 29 CFR and 8 CCR.

    d. The Construction Standard (29 CFR 1926).

    e. Federal and California Lead Standards for the Construction Industry (29 CFR, Part 1926.62 and 8 CCR, Section 1532.1, respectively)

    f. Asbestos OSHA Regulation 29 CFR Part 1926.1101 & 8 CCR 1529.

    g. Workers' Right to Know (29 CFR 1910.120).

    h. Section 6360-99 of the California Labor Code (Hazard Communication).

    i. The American with Disabilities Act (ADA).

8. Engineering controls, specific Work practices, air monitoring for contaminants (e.g., dust, natural occurring asbestos (NOA), serpentine, lead, volatile organic, and hydrocarbons), and personal protective equipment (8 CCR 5144) to protect Non-Profit Entity personnel, City personnel on the Site, and the public impacted by the Work.

9. Methods to be used to decontaminate equipment and personnel.

10. Sanitation facilities to be provided for personal hygiene. Portable toilets and discharge of their waste products into sanitary sewers shall comply with local codes.

11. Contingency /Emergency Response Plan procedures for emergencies including fire, spillage of hazardous/toxic wastes and liquids (with special emphasis to clean up of spillage due to fuel/oil from Non-Profit Entity's equipment), traffic accident, personal accident, power failure, or any event that may require modification or abridgment of site control and decontamination procedures.

    Part Two of HASP—Construction Safety:

12. Non-Profit Entity shall include an organizational structure in the HASP that sets forth lines of authority, responsibility, and communication, including a description of Non-Profit Entity's organization and Project responsibilities of key personnel.

13. Non-Profit Entity shall inform its employees, supervisory personnel and visitors (invitees) to the Project Site of known Project Site hazards.

14. Non-Profit Entity shall take necessary precautions and implement mitigation measures to prevent or reduce the release of pollutants in the form of dust, fume, mists, excessive noise and vibration into the air and surrounding environments.

15. Non-Profit Entity shall ensure at least one individual on each job site always has current CPR/First Aid/AED training.

16. Non-Profit Entity shall employ a Project-specific hard hat insignia (sticker) program which identifies workers that have successfully completed the Project safety training.

17. Information identifying and delineating all workplace safety hazards and how this information is communicated to employees (e.g., tailgate/toolbox safety meetings, monthly safety meetings, daily job briefing).

18. Non-Profit Entity shall at all time be responsible for providing its employees and visitors with the proper level of personal protective equipment (PPE), that shall be appropriate to the type of work being performed by the individual employee. At a minimum, Non-Profit Entity, Non-Profit Entity's personnel and visitor shall wear hardhats, ANSI class 2 vests, and safety glasses with side shields at the work site. Hardhats shall show company name.

19. Safety Action Measures: For Work requiring Cal/OSHA permits, special training and/or use of designated competent persons to oversee the Work, Non-Profit Entity shall prepare Safety Action Measures, to address these Work activities. The Safety Action Measures shall include detail information needed to perform the activity safely, verify that the persons involved in the Work are properly trained or certified, the equipment used is inspected and suitable for the Work, the proper permits have been obtained.

20. The format for all safety forms and reports shall be developed by Non-Profit Entity and submitted as part of Non-Profit Entity HASP.

21. Periodic safety performance reviews and procedures on safety inspections. A sample daily inspection form shall be provided in Non-Profit Entity's HASP and shall include date, Work area checked, employees present in the Work area, PPE, Work equipment being used in each area, safety and health issues, notes.

22. Procedures in handling non-compliance/violations of safety requirements, e.g. deficiency correction reports, stop Work orders, disciplinary actions, etc.

23. Communication and reporting requirements, including the immediate reporting of injury accidents and submittal of corrective action reports.

24. Requirements concerning, distribution, and maintenance of personal protective equipment and safety tools.

25. Measures and procedures to be used to report, monitor and control exposure of Non-Profit Entity personnel and public to any identified safety hazards. Non-Profit Entity shall monitor Site personnel for contaminant exposure and ensure appropriate PPE is used.

26. Provision for all personnel to be properly and regularly trained in construction safety and emergency response. The level of training required for all or specified Non-Profit Entity or Non-Profit Entity personnel, including, but not limited to the following:

    a. Heat stress

    b. Fire prevention and protection plan

    c. Fall protection and prevention program

    d. Confined Space Entry

    e. Special Equipment

    f. Ergonomics

g. Contingency Plan for emergency including fire, earthquake, etc.

27. Site Access Control Plan covering Non-Profit Entity and City personnel, consultants, representatives, the public, and Project Site visitors (see relevant subparagraph 1.14 CONSTRUCTION SITE VISITORS).

28. Construction site visitor guidelines, including the site-specific orientation and Project Site Visitor Policy form (see relevant subparagraph 1.14 CONSTRUCTION SITE VISITORS).

29. Non-Profit Entity's alcohol and substance abuse program shall describe the measures that Non-Profit Entity will implement to ensure that all Non-Profit Entity personnel working on the Project comply with the drug and alcohol restrictions stated in this Agreement and in Non-Profit Entity's Corporate Policy and Program. Non-Profit Entity's and Non-Profit Entity's personnel shall not use any alcohol or controlled substance when performing the Work, and Non-Profit Entity shall not allow any person on the Project Site who is under the influence of any alcohol or controlled substance, including any prescription the negatively affects alertness or performance.

30. Completed Activity Hazard Analysis (AHA) or Job Hazard Analysis (JHA) submitted with the HASP using the AHA/JsHA template for all significant activities and tasks with a high-risk potential, describing the job steps, hazards associated with each job step, and the controls used to remove or minimize the associated hazards.

31. Job Hazard Analysis (JHA) Form

H. Furnish copies of all records of all health and safety audits, inspections, and reviews to the City's Authorized Representative

I. The City reserves the right to require that Non-Profit Entity modify the HASP to address Project Site safety issues. However, the City's action or lack thereof on the HASP shall not be construed to mean approval, or acceptance of Non-Profit Entity's responsibility for compliance with the applicable laws and regulations.

1.6 INJURY AND ILLNES PREVENTION PROGRAM (IIPP) AND CODE OF SAFE PRACTICES (CSP)

A. Non-Profit Entity shall submit an Injury and Illness Prevention Programs (IIPP) and Code of Safe Practices (CSP) in accordance with this specification, CCR Title 8 and other applicable regulations. A copy of all applicable IIPP and CSPs must always be on-Site.

B. The City will not review IIPPs or CSPs for their content, nor will the City be liable for Non-Profit Entity's failure to have adequate IIPPs/CSPs or implement them. Submission to and receipt of IIPPs/CSPs to the City and regulatory agencies neither constitutes to the legality of the IIPPs/CSPs nor does it incur liability. Submission and receipt of IIPPs/CSPs to the City, or any review of the IIPPs/CSPs by the City, shall not be construed as approval of Non-Profit Entity's IIPPs/CSPs or any safety measures taken in or near the construction site.

C. Any changes or modifications to Non-Profit Entity's IIPP/CSP must be submitted to the City. The modification shall be appended to the appropriate IIPP/CSP. All on-site personnel shall be fully informed of the modifications, changes, and required actions prior to conducting any additional work activities.

1.7 REQUIREMENTS OF THE PROJECT SAFETY REPRESENTATIVE

A. Non-Profit Entity shall designate in writing a responsible competent person at the Project Site as Project Safety Representative (PSR) whose principal duties shall be the prevention of accidents and the maintenance and supervision of safety precautions and programs in accordance with the requirements of applicable laws and regulations. The PSR is also a qualified person having

the necessary training to be knowledgeable in the identification, control, and management of the hazardous materials encountered onsite.

B. Non-Profit Entity's Project Safety Representative (PSR) shall:

1. Be readily available (within 30 minutes of City request) to consult with the City at the site during all Project working hours and shall be available 24 hours a day, 7 days a week by telephone or other approved means.

2. Have completed a 30-hour OSHA Certified Construction Safety training session and must submit documentation of such training to the City.

3. Have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) Training Program

4. If more than one Project site working shift is initiated, Non-Profit Entity shall ensure that provisions are made to have a qualified PSR to cover all Work shifts

5. Be knowledgeable with the safety provisions of Federal OSHA, Cal/OSHA and the requirements of this section.

6. Be currently certified in First Aid/CPR and be able to use an automatic external defibrillator (AED).

7. Possess qualifications, which include a minimum of three (3) years recent experience in conducting and supervising safety and health programs on construction projects like this Contract.

8. Be capable of performing safety inspections and accident investigations.

9. Perform twice daily inspections of their active field Work area(s) covering workplace conditions, physical facility safety, and employee Work practices. Any deficiencies and corrective actions shall be documented. Furnishing of daily inspection reports shall be done as incidental work. The PSR shall meet on-site with the City at least once per week.

10. Administer and enforce the site-specific Health and Safety Plan, Injury and Illness Prevention Plan (IIPP), and Code of Safe Practices (CSP).

11. Administer and enforce the visitor site-specific safety orientation, the Project Site Visitor Policy and its guidelines.

12. Advise Non-Profit Entity's, vendors, and visitors to the job site of potential hazards and the requirements of Health and Safety practices and rules.

13. Coordinate Non-Profit Entity's Work regarding hazardous material procedures and controls (as required).

14. Establish and maintain restricted Work Areas.

15. Enforce proper use of personal protective equipment.

16. Communicate approved modified safety requirements to Project Site personnel as well as visitors to the site.

17. Notify to and coordinate with the City for the immediate assessment and remediation Work for unforeseen hazardous materials conditions discovered in the course of the Work.

18. Have “Stop Work Authority” – the ability to stop Work without any adverse consequences when unsafe conditions are present.

1.8 REQUIREMENTS OF THE ASBESTOS COMPETENT PERSON

A. Non-Profit Entity shall designate in writing a responsible asbestos Competent Person (ACP) at the Project Site whose principal duties shall be overseeing asbestos soil disturbing activities, implementing engineering and administrative controls to prevent asbestos from becoming airborne, and general compliance with Cal/OSHA, CARB, and EPA regulations related to asbestos and naturally occurring asbestos (NOA) when impacted as part of the Project. The ACP is also a qualified person having the necessary training and experience to be knowledgeable in the identification, control, and management of asbestos and naturally occurring asbestos encountered onsite. The PSR and ACP may be the same person if all training and experience requirements for both positions are met.

B. Non-Profit Entity’s Asbestos Competent Person (ACP) shall:

1. Communicate all NOA-related issues to the PSR daily and as needed as required for the PSR to fully execute its duties.

2. Have completed 40-hour Cal/OSHA-required asbestos Non-Profit Entity supervisor training and must submit documentation of such training to the City.

3. Possess qualifications, which include a minimum of three (3) years recent experience as an ACP on construction projects similar to this Contract.

4. Implement the elements of Cal/OSHA asbestos in construction standard 8 CCR §1529 and other applicable regulations and standards, including but not limited to:

   a. Demarcate the Regulated Areas and control the points of ingress and egress,

   b. Conduct asbestos worker training to all workers in Cal/OSHA Regulated Areas, and NOA awareness training to all workers and visitors who enter the site and are outside of the Regulated Areas,

   c. Assure that wet methods and other engineering controls are implemented to minimize asbestos emissions,

   d. Conduct the Initial Exposure Assessment and select respiratory protection accordingly, as required,

   e. Conduct daily personal monitoring and communicate exposure results to workers,

   f. Based on monitoring results, continuously re-evaluate PPE requirements select the appropriate respiratory protection to prevent exposure above the PEL,

   g. Assure that personal decontamination stations are adequate and located to allow workers to decontaminate thoroughly prior to exiting the Regulated Areas. The decontaminate stations shall include water and boot scrubs, HEPA-vacuums, cleaning wipes for respirators, and facilities to dispose of used Tyvek.

5. Perform twice daily inspections of asbestos and NOA field work area(s) for compliance with all asbestos and NOA regulations and standards. Any deficiencies and corrective actions shall be documented.

6. Have “Stop Work Authority” – the ability to stop work without any adverse consequences when unsafe conditions are present.

1.9 TRENCHING AND SHORING

A. Trench Safety: Non-Profit Entity shall comply with all shoring and excavation requirements set out in Federal OSHA (29 CFR 1926.650-652), Cal/OSHA (Construction Safety Order 1539-1544), the California Labor Code, and the Contract Documents.

B. Federal and State Safety regulations requires

1. Safe Exits: A stairway, ladder, ramp or other safe means of egress shall be in trench excavations that are 4 feet or more in depth to require no more than 25 feet of lateral travel for employees.

2. Shoring is required for trenches at 5 feet depth or greater, and must be designed to prevent cave-ins. Shoring may be required for trenches less than 5 feet in depth unless excavations are made entirely in stable rock or examination of the ground by a competent person provides no indication of a potential cave-in.

3. Keep excavated materials at least 2 feet or greater from the side of the excavation.

1.10 CONFINED SPACE ENTRY

A. Non-Profit Entity shall provide all equipment and assistance to make the confined space safe for entry by Non-Profit Entity's personnel, the City representatives, and its consultants in accordance with the California Code of Regulations, Title 8, General Industry Safety Orders, "Confined Spaces."

B. If any activities associated with confined space entry become necessary, Non-Profit Entity shall be required to consult the City for guidance and prepare an appropriate Permit-Required Confined Space Entry Plan.

1.11 ELECTRICAL LOCKOUT/TAGOUT PROCEDURES

A. Training of Non-Profit Entity's employees in procedures for locking out and tagging out of electrical equipment that must be de-energized to accommodate the Work.

1. The lockout/tag out of electrical energy sources shall occur at the circuit disconnect switch in all cases.

2. Non-Profit Entity shall furnish locks used for this purpose.

3. Non-Profit Entity shall furnish tags, locks, and lock box(s) that are compatible with electrical distribution equipment to be de-energized.

B. Non-Profit Entity shall attach white "DANGER" tags to locked switches to indicate that the circuit must not be energized.

C. Red "DANGER" tags shall be used to indicate that Non-Profit Entity personnel are actively working on equipment or lines connected to the locked switch. If the task that requires locking the switch has not been completed at the end of a shift or workday, Non-Profit Entity shall leave the switch lock in place, remove its Red Tag, but leave the White Tag in place on the locked circuit. When Non-Profit Entity resumes that Work, Non-Profit Entity shall again attach a Red Danger tag to the locked switch

1.12 CONSTRUCTION EQUIPMENT AND TOOLS

A. Non-Profit Entity shall only use construction equipment and tools designed and intended by the manufacturer for the Work. All Non-Profit Entity equipment shall conform to Cal/OSHA requirements.

B. Non-Profit Entity shall not use and remove from the Project Site at its expenses any equipment that the City as Regulator determines is unsafe, not intended for the Work, or that does not meet Cal-OSHA requirements.

1.13 PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. Non-Profit Entity shall define task-specific PPE requirements for all personnel and visitors in compliance with applicable laws, rules, and regulations. PPE shall always be worn on the Site, including travel within the Project Site when starting or ending shifts. Minimum requirements include:

1. Hard hats are always required at the Site. Hardhats shall show company name.

2. Appropriate eye and face protection that complies with ANSI Z87 shall always be worn.

3. Safety glasses with side shields are required at the Site.

4. Sensible and safe Work clothing and closed-toe shoes must be worn at the Site.

5. No canvas/leather sneakers or sandals may be worn in the project work areas.

6. Appropriate hearing protection shall be worn at the Project Site where sound levels exceed Cal/OSHA standards.

7. Suitable gloves must be worn to protect the hands from injury as required by Cal/OSHA.

8. High visibility warning vests (ANSI class 2 vests) or other suitable garments marked with or made of reflection or high-visibility material must always be worn at the Site.

9. Within a Cal/OSHA asbestos Regulated Areas, suitable protective clothing and respiratory protection in accordance with 8 CCR § 1529 as prescribed by the Asbestos Competent Person (ACP).

B. Non-Profit Entity's PSR and/or ACP shall establish additional appropriate levels of protection for each Work task in accordance with Cal/OSHA standards.

C. If respiratory protection is utilized, Non-Profit Entity shall implement a Respiratory Protection Program in accordance with Cal/OSHA requirements. Non-Profit Entity will also provide the following to the City prior to beginning any portion of Work that requires respiratory protections:

1. Copies of the Respiratory Program

2. Respirator training records

3. Fit-testing and medical approval documentation

4. Annual documentation for training, fit testing and medical evaluations

D. Non-Profit Entity shall provide appropriate respiratory equipment to its personnel and visitors. Non-Profit Entity shall inspect and maintain equipment in accordance with Cal-OSHA regulations.

E. Where “Hot Work” is involved, a Hot Work permit must be submitted to the City as Regulator prior to commencing that Work. Personnel performing Hot Work must wear clothing that provides thermal protection. Non-Profit Entity shall erect welding screens where welding operations may expose its personnel or the public to welding sparks, light and other hazards.

F. Safety harnesses must be worn by personnel in manlifts and when working at heights, in accordance with OSHA requirements in manlifts.

G. Workers must wear a safety harness with their safety lanyard secured to a separate lifeline while working from swing scaffolds, boatswain's chairs, or other suspended Work platforms that present a fall hazard.

1.14 PROJECT SITE VISITORS

A. All Project Site visitors upon arrival must check in with Non-Profit Entity's Project Safety Representative (PSR). Visitors are defined as persons who are not assigned as direct staff or employees of Non-Profit Entity. The PSR will coordinate a site-specific safety orientation prior to jobsite entry. The site-specific safety orientation shall provide visitors with a review and understanding of safe jobsite procedures and practices, including any safety trainings if required. Non-Profit Entity's site-specific safety orientation, at a minimum, shall include discussion of:

1. Required personal protective equipment (PPE)

2. Site access/egress routes (Site Access Control Plan)

3. Emergency contacts and procedures

4. First-aid locations

5. Potential known hazards

6. Required safety trainings and procedures

7. Construction site operations and conditions

B. Following the site-specific safety orientation, visitors must complete and sign a construction site visitor policy form provided by Non-Profit Entity. Failure to acknowledge and agree to all requirements of the construction site visitor policy form shall result in denied access to the construction work zone. The visitor policy form, at a minimum, shall require visitors to accept and acknowledge that they:

1. Have received and understand the site-specific safety orientation

2. Must not handle or utilize any job equipment, tools, or materials at any time

3. Must always wear proper PPE (Non-Profit Entity is responsible for providing any missing PPE to visitors)

4. Must attend any required safety trainings

5. Must observe and comply with construction signage, barricades, and operations

C. All visitors re-visiting jobsites shall be identified with a visitor sticker provided by Non-Profit Entity. Non-Profit Entity shall be responsible for providing and maintaining legible stickers. Visitor stickers shall indicate the visitor's name, the date of the site-specific safety orientation, and the project number. Non-Profit Entity's PSR is responsible for determining if any additional re-training is required to account for changing site conditions and procedures.

D. The City and Non-Profit Entity shall reserve the right to remove any visitor from the jobsite at any time, if he or she feels that the visitor is failing to adhere with the on-site safety requirements. Areas open to public access (e.g. sidewalks/designated paths of travel) are exempt from the Project Site Visitor Policy.

1.15 EMERGENCY EQUIPMENT

A. Non-Profit Entity shall provide emergency and first aid equipment required by Cal-OSHA and other applicable regulations and necessary for the Project. The following items, at a minimum, shall be maintained at the Project Site and available for immediate use:

1. First aid equipment and supplies, including first aid kits and eyewash station per Cal/OSHA standards

2. Spill control materials and equipment, including multi-purpose absorbent materials, poly bags, brooms and shovels and drums (if applicable)

3. Fire extinguishers with a minimum rating of 2A-10B:C and as required by Cal/OSHA standards for scope of Work requirements

4. Emergency rescue equipment including SCBA and tripod/extraction equipment for confined space rescue; backboard/basket for transport of injured personnel, air horns/bull horns for emergency signaling and communications (as applicable to the Work).

5. All Non-Profit Entity's boats and vessels used on the project shall comply with the U.S. Coast Guard and Cal/OSHA and all applicable regulations for working in/around water and waterways.

1.16 HAZARDOUS MATERIALS ENCOUNTERED AT THE SITE

A. Proposition 66 Warning: Many of the materials and items at the Project Site contain materials known to the State of California to be either carcinogenic, reproductive toxins, or that may be otherwise toxic or hazardous.

B. Non-Profit Entity shall ensure that all personnel, including Non-Profit Entity's personnel, receive appropriate training and orientation concerning toxic and hazardous materials that will prevent inadvertent or unauthorized disturbance of hazardous materials present at the Site.

C. Non-Profit Entity shall comply with all applicable requirements of the California Code of Regulations, Title 8, Section 1532.1, "Lead in Construction".

D. Non-Profit Entity shall take necessary precautions to prevent the release of lead and/or asbestos in the form of dust, fumes or mists from lead-containing and asbestos-containing materials into the air or into surrounding environments.

E. Non-Profit Entity shall inform all workers, supervisory personnel and authorized visitors to the Project Site of the potential hazards of lead and asbestos and of necessary precautions and housekeeping procedures to reduce the potential for exposure in areas where lead or asbestos is known to be present.

1.17 HAZARDOUS MATERIALS THAT MAY BE INCORPORATED INTO THE WORK

A. Non-Profit Entity shall maintain copies of Safety Data Sheets (SDS) for all substances used at the Project Site or incorporated into the Work.

B. Non-Profit Entity shall be responsible for coordinating the exchange of SDS or other hazard communication information that is required to be made available at the site.

C. Non-Profit Entity shall notify the City if a specified product or piece of equipment, or the intended use of such product or equipment is unsafe, prior to ordering such items or incorporating such items into the Work.

D. Non-Profit Entity shall be responsible for complying with all BAAQMD regulations regarding the use, documentation and notification procedures related to asbestos-related construction Work, use of aerosol products and products that are with the limits for Volatile Organic Compounds (VOC's) and other limits for compounds regulated by BAAQMD.

1.18 MEETINGS

A. Non-Profit Entity shall conduct regular trainings for its personnel, including but not limited to "toolbox/tailgate" safety meetings, in accordance with Cal/OSHA requirements. Non-Profit Entity shall document the date, time, subject addresses, and names of persons who attended any training meetings using the Safety Meeting Attendance sheet, which Non-Profit Entity shall keep on file.

B. Non-Profit Entity's Project Manager, Superintendent(s), and PSR shall attend Weekly Project Coordination Meetings (as required) to review the project's Immediately Dangerous to Life and Health (IDLH) actives, stop Work activities, incidents, and incident investigations.

1.19 LOGS, REPORTS, AND RECORDKEEPING

A. Non-Profit Entity shall maintain Project safety audits, employee training records and certifications, equipment safety inspection logs, incident reports, visitor logs and all reports covering the implementation of Non-Profit Entity HASP at the Project Site for review upon request by the City.

B. Non-Profit Entity shall submit Monthly project safety statistics, which shall include Project safety inspections, hours worked by Non-Profit Entity, OSHA Recordable Incidents, Incident Rates, Lost Work Day Cases, Total Project Lost Work Days, Days Away from Work Rate, First Aid Cases, and Property Damage Incidents, to City as part of the Monthly Progress Status Report.

C. Non-Profit Entity shall provide the City access to the Project Site, and to all logs and records concerning the Work. The City's review of Non-Profit Entity's logs and records documenting its safety performance shall not be construed as approval or waiver of the adequacy of any safety measures taken in, on, or near the Project Site. The City's review of Non-Profit Entity's logs and records shall not relieve Non-Profit Entity of its responsibilities of performing and enforcing health and safety inspections/audits, monitoring, or any other components of the Project safety requirements or Non-Profit Entity's HASP, and any liability that may arise from Non-Profit Entity's performance or failure to perform safety Work.

1.20 REMEDIAL ACTION

A. The City will issue a notice of non-compliance if City personnel observe any condition at the Project Site that poses an immediate and serious risk to the life or health of persons at the Site, or if City personnel observe that Non-Profit Entity has failed to timely correct violations of health or safety standards. The notice will document the facts and circumstances of non-compliance and will require Non-Profit Entity to immediately remedy and correct the non-compliance and confirm in writing within 24 hours of receipt of the notice that the non-compliant conditions described in the notice have been corrected.

B. If Non-Profit Entity repeatedly fails to comply with applicable health and safety laws, rules, regulations, and orders, the City reserves the authority to have the necessary Work performed by others and deduct corresponding costs from Non-Profit Entity's progress payment(s); suspend progress payments; or terminate the contract for cause.

C. Non-Profit Entity's non-compliance with applicable health and safety laws, rules, regulations, orders, and contract safety requirements may be deemed breach of contract, for which the City may suspend the Work, and dismiss from the Work any employee of Non-Profit Entity, Non-Profit Entity, or Supplier responsible for the non-compliance, as provided in the General

Provisions. Non-Profit Entity shall bear all costs arising from such suspension of Work or dismissal of employee(s).

D. Non-Profit Entity shall not create any condition that endangers the safety of any person on the Project Site, including City employees, Non-Profit Entity employees, City consultants, and the public. If City personnel observe such a condition, the City is authorized to suspend the Work until the condition is corrected. Such order to suspend the Work shall not impose on the City any obligation, penalty, additional costs or assumption of liability of any kind. Contract Time shall not be extended by such suspension, and Non-Profit Entity shall be solely responsible for and the City shall not compensate Non-Profit Entity for any delay caused by a suspension of the Work due to unsafe conditions. Any suspension of Work due to unsafe conditions shall not relieve Non-Profit Entity of its control of the Project Site or responsibility for safety on the Project Site during the period the Work is suspended.

1.21 INCIDENT REPORTING AND INVESTIGATION

A. Non-Profit Entity personnel who are involved in or witness an unsafe condition at the Project Site or a Reportable Incident (as defined by Cal-OSHA) shall immediately report the condition or incident to Non-Profit Entity's Project Site supervisor or foreman, who in turn shall immediately notify the City's Authorized Representative.

B. Non-Profit Entity personnel who are involved in or witness a near-miss incident must report it to the responsible Project Site supervisor or foreman within a reasonable time frame, not to exceed 24 hours, who in turn shall immediately notify the City's Authorized Representative.

C. Non-Profit Entity shall allow City to participate and review all Project incident or near-miss investigations.

D. Non-Profit Entity's foremen, superintendents, and managers shall not decline to accept or relay a report of injury or significant near-miss incident from any person.

E. All incidents and significant near-miss incidents shall be investigated immediately by Non-Profit Entity's designated Project Safety Representative (PSR).

F. For all incidents and near miss incidents ("near miss"), Non-Profit Entity shall submit to the City a Preliminary Incident/Near Miss Investigation Report (PIR) within 24 hours of the incident or near miss. Non-Profit Entity shall submit a Final Incident/Near Miss Investigation Report (FIR) as soon as possible (generally within 48 hours) after incident or near miss. Non-Profit Entity shall not perform Work in the area or of a type that poses risks similar to those of the incident or near miss until a Corrective Action Report (CAR) is complete and submitted to the City.

G. The PIR and the FIR shall include at a minimum the following:

1. What happened? Include interviews with injured workers and witnesses as well as examination of the workplace for factors associated with the incident or near miss.

2. Why did the incident or near miss happen? identify the root causes of the incident or near miss. Root causes are the underlying or systemic, rather than the generalized or immediate, causes of an incident/near miss. To identify root causes, the investigation must obtain all the facts surrounding the occurrence and then ask why. For example, what caused the situation to occur; who was involved; was/were the employee(s) qualified to perform the functions involved in the incident or near miss; were they properly trained; were proper operating procedures established for the task involved; were procedures followed, and if not, why not; where else this or a similar situation might exist, and how it can be corrected.

3. What should be done? The investigation must determine all corrective actions required to eliminate the cause(s) of the incident or near miss.

4. What action has been taken and what remains to be taken? Document actions already taken to reduce or eliminate the exposures being investigated. Document all interim or temporary precautions. Document any pending corrective action and reason for delaying its implementation.

5. Non-Profit Entity shall submit to the City a Corrective Action Report (CAR) that documents that all corrective actions have been completed and fully implemented and all job site hazards and behaviors that caused the incident or near-miss incident have been corrected. The CAR shall include certification signed by an authorized Officer of Non-Profit Entity as to the completeness and accuracy of the FIR and the CAR.

1.22 ACCIDENT DOCUMENTATION AND REPORTING

A. If an accident causes death, serious injury, or serious property damage, Non-Profit Entity shall immediately report the accident to the City's Authorized Representative by telephone, text message or email and to appropriate authorities (for example, Cal-OSHA).

B. In addition, Non-Profit Entity shall promptly report in writing to the City all accidents or near-miss incidents whatsoever arising out of or in connection with, the performance of the Work whether on occurring on or adjacent to the Project Site or the Construction Area. Non-Profit Entity shall give full details of the facts and circumstances of the cause and nature of the incident including statements of witnesses.

C. Non-Profit Entity shall make positive contact with City Authorized Representative. Voicemail does not constitute "positive contact." Non-Profit Entity shall escalate from Project Manager to Project Director until positive contact is made immediately following an incident.

D. Non-Profit Entity shall provide to the City within five working days of an incident or accident or near-miss incident or accident, a written incident or accident; or near-miss incident or a near-miss accident report. A significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

E. If any person lodges a claim against Non-Profit Entity or any Non-Profit Entity alleging injury or property damage arising from the Work, Non-Profit Entity shall promptly report the claim and all relevant facts concerning the claim in writing to the City.

F. Non-Profit Entity is responsible for all documentation and reporting obligations of any accident and near-miss incidents in accordance with as per federal, State and local laws and regulations.

1.23 CITY SAFETY REPRESENTATIVE

A. The City may at any time and without notice enter the Project Site and inspect the Project Site and the Work, observe Non-Profit Entity's means and methods of performing the Work and maintenance of the Project Site, and review Non-Profit Entity's compliance with applicable safety requirements, regulations and laws, including but not limited to the requirements of this Agreement and Cal-OSHA regulations. The purpose of the these inspections and observations is to confirm that Non-Profit Entity is safeguarding all people and property on the Project Site.

B. If the City observes an unsafe Project Site condition or unsafe means or methods of performing Work, the City will inform Non-Profit Entity's Construction Manager or PSR, who shall take whatever actions Non-Profit Entity deems necessary to immediately remedy the unsafe Project Site condition or unsafe work practice, or unsafe means or methods in which the Work is performed. Non-Profit Entity shall within 24 hours of taking such remedial action submit a report

to the City describing the unsafe Project Site condition or work practice, and how Non-Profit Entity remedied that unsafe condition, unsafe work practice, or unsafe means and methods of performing the Work.

C. The City's inspection of the Project Site and the Work, the City's observation of Non-Profit Entity's means and methods, and the City's requiring Non-Profit Entity remedy an unsafe Project Site condition, unsafe work practice, or unsafe means and methods of Work shall not in any way relieve Non-Profit Entity of control of and responsibility for the Site, and does not relieve Non-Profit Entity of its responsibility for the safety of all persons on the Project Site.

1.24 SFMTA HEALTH AND SAFETY REQUIREMENTS:

A. Non-Profit Entity shall comply with the following requirements as applicable and at no additional cost to the City, if any part of the work for this job is under the jurisdiction of the SFMTA and is on one of its facilities and/or affects its bus/train routes.

B. Non-Profit Entity shall obtain all the necessary City and SFMTA permits, trainings, clearances, and shall schedule any necessary SFMTA support at least two weeks prior to mobilization.

C. Non-Profit Entity employees who will perform Work within 72 inches (measured transversely) of SFMTA rail tracks shall first receive "Roadway Worker Protection" training and certification from the SFMTA, at least two weeks prior to mobilization. Non-Profit Entity shall schedule "Roadway Worker Protection" training by contacting the SFMTA. Non-Profit Entity shall sign a Hold Harmless Agreement with SFMTA with respect to the safety training.

D. In addition, and at least two weeks prior to mobilization, Non-Profit Entity shall obtain a "Track Access Clearance Permit" from SFMTA's Operations Control Center (OCC) before working within 72 inches of the rail tracks. Non-Profit Entity shall schedule the "Track Access Clearance Permit" training by contacting SFMTA.

E. All Non-Profit Entity personnel performing Work along a trackway or adjacent to a trackway shall comply with any instruction given by SFMTA Operations Control Center (OCC).

F. Non-Profit Entity is alerted to the presence of the Overhead Contact System (OCS). The overhead contact system is above each trolley coach route and track, and adjacent to each platform. This is a HIGH VOLTAGE SYSTEM operating in excess of 600 volts DC. Non-Profit Entity's attention is directed to Article 37 of the California Public Utilities Commission General Order 95. Cal/OSHA regulations require that any boom type equipment that moves vertically must maintain 10 feet radial clearance and any other equipment must maintain a 6 feet clearance from OCS. Non-Profit Entity shall use only fiberglass ladders when working around the OCS. Non-Profit Entity shall obtain "clearance to start work" from the SFMTA facility's supervisor when working within 10 feet of the OCS, at least two weeks prior to performing that Work.

G. Non-Profit Entity shall comply with California Public Utilities Commission's General Order 175-A and the SFMTA "Roadway Worker Protection" training when performing any work on or near Muni trackways.

H. Non-Profit Entity shall provide proof of health and safety training required by CCR, Title 8, Subsection 3203 (a)(7) and Muni Procedures SY.PR.034 – Non-Profit Entity Safety Program and SY.PL.003 – Roadway Worker Protection (RWP) Plan, for each employee, including employee name or other identifiers, training dates, type(s) of training and training provider. These documents are available for review and inspection from SFMTA.

I. Non-Profit Entity shall during the course of the Work regularly provide tail-gate trainings to all employees working in and around tracks, track switches, overhead catenary system, train signal system, and other Project specific hazards, as required by Cal-OSHA regulations and other applicable laws and as topics related to safe performance of the Work and maintenance of Project Site safety come to the attention of Non-Profit Entity.

J. Non-Profit Entity shall ensure that its employees, agents, and contractors provide and maintain personnel safety training and medical examinations in accordance with all applicable Federal, State, and local safety and health standards, rules, regulations, and orders.

K. Non-Profit Entity shall acquire all the proper permits, trainings, clearances, and schedule any SFMTA support as necessary, at least two weeks prior to mobilization.

L. Non-Profit Entity shall sign an Assumption of Risk/Waiver of Claims/Hold Harmless Agreement with SFMTA with respect to the operational and safety training.

M. Cost for all the above requirements, permits, training, and clearances is incidental and inclusive of the base bid.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 50 - ADDITIONAL ENVIRONMENTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes additional environmental procedures and environmental mitigation measures derived from Project specific regulatory permits and/or CEQA compliance that Non-Profit Entity shall follow during construction.
This section includes:

1. Documentation of Historic Resource
2. Salvage Plan
3. Interpretation of Historic Resource
4. Oral Histories
5. Tribal Cultural Resources Preservation
6. Construction Transportation and Communications Management Plan
7. Driveway and Loading Operations Plan
8. Paleontological Evaluation and Monitoring Plan
9. Vibration Sensitive Equipment at 2601 Mariposa Street (KQED Building)

1.2 DAMAGES FOR FAILURE TO MEET ENVIRONMENTAL REQUIREMENTS

A. Non-Profit Entity shall be liable for all Federal, State, and local regulatory fines, penalties, liquidated damages and costs arising from any Non-Profit Entity failure to implement mitigation measures to control environmental impacts..

1.3 PROJECT CONDITIONS

A. Non-Profit Entity shall familiarize itself as to the actual site conditions that may be encountered during construction by all means available, including, but not limited to, the use of USGS geologic maps.

B. Non-Profit Entity shall make provisions to ensure that environmental mitigation controls are consistently implemented for the project duration.

C. Pursuant to California Assembly Bill 3180 (chapter 1232), the City Planning Department at its own discretion will monitor Non-Profit Entity's compliance with Code and Contract requirements, including required mitigation actions for construction impacts as indicated in the final MMRP, and will report on Non-Profit Entity's compliance with required mitigation controls. Said monitoring and reporting activities may include, but are not limited to, qualitative, quantitative and video observations and data collection on the impacts of noise, vibration air quality, traffic, street pavement damage, water quality, cultural resources, biological resources and hazardous materials.

D. Non-Profit Entity shall cooperate with such monitoring activities, provide access to the Project Site and Construction Work areas to establish and secure monitoring stations, and make its facilities and records available to the City Planning Department for performing such monitoring.

E. City will issue a Notice of Determination to Non-Profit Entity for any detected non-compliance with the provisions herein or of any environmentally objectionable acts and the corrective action to be taken. Failure to comply will result in an assessment of liquidated damages.

PART 2 - SUBMITTALS

2.1 DOCUMENTATION OF HISTORICAL RESOURCE

A. Unless stated otherwise, the following must be submitted and approved by City Planning Department prior to issuance of a demolition permit. Non-Profit Entity shall undertake Historic American Building/Historic American Landscape Survey-like (HABS/HALS-like) documentation of the building features. Documentation shall be undertaken by a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History, History, or Architecture (as appropriate) to prepare written and photographic documentation of the Potrero Trolley Coach Division Facility. Non-Profit Entity shall submit to the City Planning Department for approval the scope of the documentation which shall include the following elements:

1. Measured Drawings: A set of measured drawings shall be prepared that depict the existing size, scale, and dimension of the historic resource. City Planning Department will accept the original architectural drawings or an as-built set of architectural drawings (e.g., plans, sections, elevations). City Planning Department will assist the consultant in determining the appropriate level of measured drawings.

2. HABS/HALS-Level Photographs: Either HABS/HALS standard large-format or digital photography shall be used. All digital photography shall be conducted according to the latest National Park Service (NPS) standards. Photography shall be undertaken by a qualified professional with demonstrated experience in HABS/HALS photography. Photograph views for the data set shall include (i) contextual views, (ii) views of each side of the building and interior views, (iii) oblique views of the building, and (iv) detail views of the character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the data set.

3. HABS/HALS Historical Report: A written historical narrative and report shall be provided in accordance with the HABS/HALS Historical Report Guidelines. The written history shall follow an outline format that begins with a statement of significance supported by the development of the architectural and historical context in which the structure was built and subsequently evolved. The report shall also include architectural description and bibliographic information.

4. Video Recordation: Prior to issuance of a demolition permit or site permit is issued, video documentation of the affected historical resource and its setting shall be conducted by a professional videographer, one with experience recording architectural resources. The documentation shall be narrated by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards (36 Code of Federal Regulations Part 61). The documentation shall include as much information as possible—using visuals in combination with narration—about the materials, construction methods, current condition, historic use, and historic context of the historical resource.

5. Softcover Book: All documentation will be reviewed and approved by the Planning Department's staff before any demolition or site permit is granted for the affected historical resource. A print-on-demand softcover book shall be produced that includes the content from the historical report, historical photographs, HABS/HALS photography, measure drawings, and field notes. The print-on-demand book shall be made available to the public for distribution. Non-Profit Entity shall transmit such documentation to the History Room of the San Francisco Public Library, San Francisco Architectural Heritage, the Planning Department, and the Northwest Information Center. Conduct outreach to identify other interested groups.

2.2 SALVAGE PLAN

A. Prior to any demolition that would remove character-defining features, Non-Profit Entity shall consult with the Planning Department as to whether any character-defining features that are proposed to be demolished may be salvaged, in whole or in part, during demolition. Non-Profit Entity shall make a good faith effort to salvage materials of historical interest to be utilized as part of the interpretative program).

2.3 INTERPRETATION OF THE HISTORICAL RESOURCE

A. Non-Profit Entity shall facilitate the development of an interpretive program focused on the history of the Project Site. The interpretive program should be developed and implemented by a qualified professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner, such as a museum or exhibit curator. Non-Profit Entity shall submit to the City Planning Department for approval an interpretive program plan prepared by a qualified consultant which shall include but not limited to:

1. The proposed format and the publicly accessible location of the interpretive content, as well as high-quality graphics and written narratives.

2. The proposal prepared by the qualified consultant describing the general parameters of the interpretive program shall be approved by City Planning Department prior to issuance of the architectural addendum to the site permit.

3. The detailed content, media, and other characteristics of such an interpretive program shall be approved by City Planning Department prior to issuance of a Temporary Certificate of Occupancy.

4. Installation of permanent on-site interpretive displays or screens in publicly accessible locations.

5. Historical photographs, including some large-format photographs required by Article 2.1(A), may be used to illustrate the Project Site's history.

6. Educational information for future visitors and occupants to learn about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts.

2.4 ORAL HISTORIES

A. Non-Profit Entity shall undertake an oral history project on the resource that may include interviews of people such as former SFMTA employees, or other community members who may offer informative historic perspectives on the history and significance of the resource. The project shall be conducted by a professional historian in conformance with the Oral History Association's Principles and Best Practices . In addition to transcripts of the interviews, the oral history project shall include a narrative project summary report containing an introduction to the project, a methodology description, and brief summaries of each conducted interview. Copies of

the completed oral history project shall be submitted to the San Francisco Public Library, Planning Department, and other interested historical institutions. The oral history project shall also be incorporated into the interpretative program (see Article 2.3).

2.5 TRIBAL CULTURAL RESOURCES PRESERVATION

A. During ground-disturbing activities that encounter archeological resources, if the City Planning Department determines that a significant archeological resource is present, and if in consultation with the affiliated Native American tribal representatives, the City Planning Department determines that the resource constitutes a tribal cultural resource (TCR) and that the resource could be adversely affected by the proposed project, the proposed project shall be redesigned so as to avoid any adverse effect on the significant tribal cultural resource, if feasible.

B. If the City Planning Department, in consultation with the Non-Profit Entity, determines that preservation-in-place of the TCR would be both feasible and effective, then the archeological consultant shall prepare an archeological resource preservation plan (ARPP). Implementation of the approved ARPP by the archeological consultant shall be required when feasible.

C. If the City Planning Department, in consultation with the affiliated Native American tribal representatives and the project sponsor team, determines that preservation-in-place of the TCR is not a sufficient or feasible option, then the project sponsor team shall implement an interpretive program of the TCR in consultation with affiliated Native American tribal representatives. An interpretive plan produced in consultation with affiliated Native American tribal representatives, at a minimum, and approved by the City Planning Department, would be required to guide the interpretive program. The plan shall identify proposed locations for installations or displays, the proposed content and materials of those displays or installation, the producers or artists of the displays or installation, and a long-term maintenance program. The interpretive program may include artist installations, preferably by local Native American artists, oral histories with local Native Americans, artifacts displays and interpretation, and educational panels or other informational displays.

2.6 CONSTRUCTION TRANSPORTATION AND COMMUNICATIONS MANAGEMENT PLAN

A. Non-Profit Entity shall submit to SFMTA the Construction Management Plan that shall include additional measures to further minimize disruptions to people walking and bicycling, transit, and emergency vehicles during construction. The additional measures include:

1. To minimize parking demand and vehicle trips associated with construction workers, describe methods to encourage carpooling, bicycle, walk, and transit access to the Project Site by construction workers. These methods could include providing secure bicycle parking spaces, participating in free-to-employee and employer ride matching program from www.511.org, participating in emergency ride home program through the City of San Francisco (www.sferh.org), and providing transit information to construction workers.

2. To minimize construction impacts on access to nearby residence and businesses, provide nearby residences and adjacent businesses with regularly updated information regarding project construction, including construction activities, peak construction vehicles activities, travel lane closures, and parking lane and sidewalk closures. At regular intervals to be defined in the construction transportation management plan, a regular email notice will be distributed by Non-Profit Entity that would provide current construction information of interest to neighbors, as well as contact information for specific construction inquiries or concerns.

2.7 DRIVEWAY AND LOADING OPERATIONS PLAN (DLOP)

A. Non-Profit Entity to submit a Driveway and Loading Operations Plan (DLOP) to the City Planning Department for approval as a part of the application for the first temporary occupancy permit. The intent of the DLOP is to reduce potential conflicts between passenger and freight loading and transit operations, and between passenger and freight loading activities and people walking and bicycling, and other vehicles in the project vicinity, as well as to maximize reliance on onsite facilities to accommodate freight loading demand. The DLOP shall include:

1. Provisions to manage loading activities and driveway operations associated with the below-grade onsite loading spaces; and

2. Provisions for assessing on-street commercial and passenger loading supply and protocol for expanding on-street supply, if needed; and

3. Provisions for trash, recycling, and compost truck access and collection operations; and

4. Provisions for resident move-in and move-out operations for the HCC; and

5. Provisions for scheduling deliveries for SFMTA and IFM Non-Profit Entity using the onsite loading facilities; and

6. Provisions for accommodating recurring deliveries such as UPS, Federal Express, and USPS within the onsite loading facilities.

2.8 PRECONSTRUCTION PALEONTOLOGICAL EVALUATION AND MONITORING PLAN DURING CONSTRUCTION

A. Non-Profit Entity shall engage a qualified paleontologist consultant as recommended by the Society of Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphey et al. 2019), or as otherwise approved by City Planning Department, to develop a site-specific monitoring plan prior to commencing soil-disturbing activities at the Project Site. The Preconstruction Paleontological Monitoring Plan shall determine construction activities requiring paleontological monitoring based on those that may affect sediments with moderate sensitivity for paleontological resources. Non-Profit Entity shall submit the Preconstruction Paleontological Monitoring Plan to the City Planning Department for approval prior to issuance of any demolition permit. The plan shall include but not be limited to:

1. Project description.

2. Regulatory environment; outline applicable federal, state and local regulations.

3. Summary of sensitivity classification(s).

4. Research methods, including but not limited to:

   a. Field studies conducted by the approved paleontologist to check for fossils at the surface and assess the exposed sediments.

   b. Literature Review to include an examination of geologic maps and a review of relevant geological and paleontological literature to determine the nature of geologic units in the project area.

   c. Locality Search to include outreach to the University of California Museum of Paleontology in Berkeley.

5. Results which include a summary of literature review and finding of potential site sensitivity for paleontological resources; and depth of potential resources if known.

6. Recommendations for any additional measures that could be necessary to avoid or reduce any adverse impacts to recorded and/or inadvertently discovered paleontological resources of scientific importance. Such measures could include:

    a. Avoidance: If a known fossil locality appears to contain critical scientific information that should be left undisturbed for subsequent scientific evaluation.

    b. Fossil Recovery: If isolated small-, medium- or large-sized fossils are discovered during field surveys or construction monitoring, and they are determined to be scientifically significant, they should be recovered. Fossil recovery may involve collecting a fully exposed fossil from the ground surface, or may involve a systematic excavation, depending upon the size and complexity of the fossil discovery.

    c. Monitoring: Monitoring involves systematic inspections of graded cut slopes, trench sidewalls, spoils piles, and other types of construction excavations for the presence of fossils, and the fossil recovery and documentation of these fossils before they are destroyed by further ground disturbing actions. Standard monitoring is typically used in the most paleontologically sensitive geographic areas/geologic units (moderate, high and very high potential); while spot-check monitoring is typically used in geographic areas/geologic units of moderate or unknown paleontological sensitivity (moderate or unknown potential).

    d. Data recovery and reporting: Fossil and associated data discovered during soils disturbing activities should be treated according to professional paleontological standards and documented in a data recovery report. The plan should define the scope of the data recovery report.

2.9 STORMWATER MANAGEMENT ORDINANCE, STORMWATER CONTROL PLAN

A. Non-Profit Entity shall submit the Final Stormwater Control Plan to San Francisco PUC prior to submitting the Architectural building permit to the San Francisco Department of Building Inspection (SFDBI).

PART 3 - EXECUTION

3.1 VIBRATION SENSITIVE EQUIPMENT AT 2601 MARIPOSA STREET (KQED HEADQUARTERS)

A. Prior to issuance of any construction permits (e.g.) site permit, demolition permit, etc.), Non-Profit Entity shall implement the following measures related to the KQED Headquarters located at 2601 Mariposa Street:

1. Community Liaison

    a. Designate and make available a community liaison to respond to vibration complaints from building occupants at the KQED Headquarters located at 2601 Mariposa Street.

    b. Contact information for the community liaison shall be posted in a conspicuous location so that it is clearly visible to building occupants most likely to be disturbed.

c. Provide notification, through the community liaison, to property owners and occupants at 2601 Mariposa Street at least 10 days prior to construction activities involving equipment that can generate vibration capable of interfering with vibration-sensitive equipment and inform them of the estimated start date and duration of vibration-generating construction activities.

d. Equipment types capable of generating such vibration include an impact pile driver, or similar equipment, operating within 250 feet of the building or a vibratory roller, or similar equipment, operating within 125 feet of the building. If feasible, the project sponsor team shall identify potential alternative equipment and techniques that could reduce construction vibration levels. Alternative equipment and techniques may include, but are not limited to:

   1) Pre-drilled piles; and

   2) Caisson drilling; and

   3) Oscillating or rotating pile installation; and

   4) Jetting piles into place using a water injection at the tip of the pile could be substituted for driven piles, if feasible, based on soil conditions; and

   5) Static rollers could be substituted for vibratory rollers in some cases.

e. If concerns prior to construction or complaints during construction related to equipment interference are identified, the community liaison shall work with the affected building occupants to resolve the concerns such that the vibration control measures would meet a performance target of the 65 VdB vibration level threshold for vibration sensitive equipment, as set forth by Federal Transit Authority. To resolve concerns raised by building occupants, the community liaison shall convey the details of the complaint(s) to the project sponsor team, such as who shall implement specific measures to ensure that the project construction meetings the performance target of 65 VdB vibration level for vibration sensitive equipment. These measures may include evaluation by a qualified noise and vibration consultant, scheduling certain construction activities outside the hours of operation or recording periods of specific vibration-sensitive equipment if feasible, and/or conducting ground-borne vibration monitoring to document that the project can meet the performance target of 65 VdB at specific distances and/or locations. Ground-borne vibration monitoring, if appropriate to resolve concerns, shall be conducted by a qualified noise and vibration consultant.

3.2 PALEONTOLOGICAL MONITORING DURING CONSTRUCTION

A. Non-Profit Entity's approved paleontologist consultant described above in Section 2.8 shall document the monitoring conducted according to the Preconstruction Paleontological Monitoring Plan (see subsection 2.8 of this Section) and any data recovery completed for significant paleontological resource finds discovered, if any. Non-Profit Entity's approved paleontologist shall submit a final monitoring report and any data recovery report to the City Planning Department for approval prior to the certificate of occupancy.

3.3 INADVERTENT DISCOVERY OF PALEONTOLOGICAL RESOURCES

A. Worker Awareness Training - Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation, etc.) the project sponsor team and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the City Planning Department. The Paleontological Resources Alert Sheet shall be prominently displayed at the

construction site during ground disturbing activities for reference regarding potential paleontological resources.

B. In addition, the project sponsor team shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above.

C. The project sponsor team shall complete the standard form/affidavit confirming the timing of the Paleontological Resources worker awareness training to the City Planning Department. The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the City Planning Department within five (5) business days of conducting the training.

D. In the event of the discovery of an unanticipated paleontological resource during construction, Non-Profit Entity shall temporarily halt ground disturbing activities within 25 feet of the find until the discovery is examined by a qualified paleontologist as recommended by the Society of Vertebrate Paleontology standards (SVP 2010) and Best Practices in Mitigation Paleontology (Murphy et al. 2019). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the City Planning Department.

E. The qualified paleontologist shall determine:

1. If the discovery is scientifically significant; and

2. The necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and

3. Methods for resource recovery.

F. If the qualified paleontologist determines that the discovery is not scientifically important, the qualified paleontologist shall document this conclusion in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). Non-Profit Entity shall submit the Paleontological Evaluation Letter to the City Planning Department for review within 30 calendar days of the discovery.

G. If the qualified paleontologist determines that the discovery is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare and submit to the City Planning Department for approval a Paleontological Mitigation Program. The mitigation program shall include measures to fully document and recover the resource of scientific importance. The qualified paleontologist shall submit the mitigation program to the City Planning Department for review and approval within 10 business days of the discovery. Upon approval by the City Planning Department, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities.
The mitigation program shall include:

1. Procedures for construction monitoring at the Project Site.

2. Fossil preparation and identification procedures.

3. Curation of paleontological resources of scientific importance into an appropriate repository.

4. Preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities.

H. If a Paleontological Mitigation Program is required, Non-Profit Entity shall prepare and submit a Paleontological Resources Report to the City Planning Department for review within 30 calendar days from consultation of the ground disturbing activities, or as negotiated with the City Planning Department. The report shall include:

1. Date of field work; and

2. Results of monitoring; and

3. Fossil identifications to the lowest possible taxonomic level; and

4. Analysis of the fossil collection; and

5. Conclusions; and

6. Locality forms; and

7. An itemized list of specimens; and

8. Repository receipt from the curation facility.

I. Non-Profit Entity shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to City Planning Department for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with City Planning Department.

END OF SECTION

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Non-Profit Entity shall provide and maintain construction facilities and temporary controls as required to perform the D&C Work relocate as required by the progress of the Work.

2. Unless otherwise required by the City, materials for construction facilities and temporary controls may be new or used, and shall be suitable for the purposes intended.

3. Materials, installation and maintenance of construction facilities and temporary controls shall comply with applicable regulatory requirements.

4. Non-Profit Entity shall maintain construction facilities in sound, neat and clean condition, and remove any graffiti and repair any vandalism to the satisfaction of the City.

5. Non-Profit Entity shall remove construction facilities and controls, including associated utilities and equipment, when their use is no longer required.

B. Related Sections:

1. Section 01 77 00 - Closeout Procedures.

1.2 OPERATION HOURS FOR TEMPORARY CONTROLS

A. Non-Profit Entity shall provide and maintain temporary pumping, piping, power, lighting, controls, instrumentation, alarms, security devices, and all required safety devices at all times. Such items shall be made available for immediate use when Non-Profit Entity’s operations impact existing systems.

1.3 TEMPORARY ELECTRICITY

A. Non-Profit Entity shall provide and pay for electrical service and weatherproof, grounded distribution system of sufficient size, capacity, and power characteristics during the construction period. Existing on-site City electrical facilities are not available for Contractor’s use.

1.4 TEMPORARY LIGHTING

A. Non-Profit Entity shall provide and maintain lighting for Construction Work, including power to distribution boxes. Required illumination may be provided by approved cord sets with lamp guards. Non-Profit Entity shall provide and maintain temporary lighting whenever new permanent lighting fixtures are switched over from existing lighting.

1.5 TELEPHONE SERVICE

A. Non-Profit Entity shall provide, maintain and pay for telephone service to Non-Profit Entity's field office from the time of project mobilization.

1.6 TEMPORARY WATER SERVICE

A. Potable Water: Non-Profit Entity shall arrange with the San Francisco Water Department to provide potable water by connecting to City water systems.

1. Contact the Water Department at 415-923-2400 for arranging such water service.

2. Water is available from fire hydrants located in the streets. Obtain permission from the San Francisco Fire Department to use hydrants.

3. Pay the costs of connection fees, meters, and all water furnished by the San Francisco Water Department under the water service account established above.

B. Non-Profit Entity is advised that Ordinance # 175-91, Article 21, Section 1100 to 1107 of the San Francisco Municipal Code (Public Works Code), restricts the use of potable water for soil compaction or dust control activities, to the extent not directly in conflict with any applicable federal, state and local law.

1. In consideration for potential health concerns, an exemption may be allowed for the use of potable water for soil compaction or dust control activities when human contact and exposure exists. Such exemption will be considered and may be granted on a case by case basis.

2. If Non-Profit Entity seeks to use potable water for soil compaction or dust control activities, Non-Profit Entity, shall apply for, and obtain an exemption pursuant to Ordinance #175-91, Article 21, prior to its use. The application for such use of potable water is to be sent to the Department of Public Health, Environmental Health Section, 1390 Market St., Room 910, San Francisco, CA 94102, Telephone 415-252-3945. Permission for such use may be granted by the General Manager of the Water Department, pursuant to Ordinance #175-91, Article 21.

C. Reclaimed Water: Non-Profit Entity shall arrange with the SEWPCP to provide reclaimed water for soil compaction and dust control which is available at no cost to Non-Profit Entity at the SEWPCP from 8:00 A.M. to 5:00 P.M. on weekdays and Saturdays.

1. Arrangements can be made for access to reclaimed water at other times.

2. A permit is required to obtain reclaimed water from the City. Contact mfisher@sfwater.org and/or (415) 695-7378 at least three (3) days prior to the date that reclaimed water is required. See http://sfwater.org/modules/showdocument.aspx?documentid=7234 for more information.

D. Non-Profit Entity shall provide its own water tanker and hoses. Non-Profit Entity's hoses crossing traveled roadways shall be buried beneath the roadway or ramped over.

E. Non-Profit Entity shall provide and maintain distribution piping, water tankers, hoses, and all appurtenances necessary to supply water at the job site.

1. Bury pipe crossing traveled roadways beneath the roadway. Use hose or ramp over temporary piping on roadway surfaces.

1.7 TEMPORARY SANITARY FACILITIES

A. Non-Profit Entity shall provide and maintain required toilet facilities and enclosures. Location of facilities shall be a minimum of 50 feet away from the Project field office or otherwise approved by City.

B. Non-Profit Entity shall be responsible to provide and maintain all construction facilities, temporary controls, and temporary utilities as required to perform the work of the Contract Documents. Non-Profit Entity shall arrange with the utility agencies to provide and pay for such utility services required, including furnishing, installing and removing on completion of all work all temporary connections to said utilities.

C. Non-Profit Entity shall provide and maintain temporary toilet facilities and enclosures as required at no cost to the City.

1.8 TEMPORARY CONSTRUCTION FENCE

A. Non-Profit Entity shall furnish and install a temporary 6’-0” chain link construction fence with lockable gates at the limit of work and at areas to isolate and protect the public from hazardous conditions during construction.

B. Non-Profit Entity shall provide fencing as needed to prevent unsafe entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

C. Protect vehicular traffic, stored materials, site and structures from damage.**TEMPORARY ENCLOSURES**

A. Non-Profit Entity shall provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.

3. Close openings through floor or roof decks and horizontal surfaces with load-bearing wood-framed construction.

1.10 MAINTENANCE OF THE WORK AREA

A. Non-Profit Entity shall maintain the work areas in a safe condition, remove all accumulations of rubbish (Non-Profit Entity’s waste and public refuse) and surplus materials at the end of each working day, restore them to a condition equal to that which existed prior to the start of work, and leave them at completion of the contract in a clean, orderly fashion.

B. Demolished concrete, deteriorated masonry, cleared vegetation, and excavated material not indicated for reuse shall be removed from the site at the end of each working day without delay and disposed of in a legal manner.

C. Cleaning During Construction: Control accumulation of waste materials and rubbish; collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly.

1. Clean interior spaces prior to the start of finish work; maintain areas free of dust and other contaminants during finishing operations.

2. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material off-site in a lawful manner.

3. Maintain the site and all adjacent public areas in a clean and orderly condition. Maintain the site, equipment, fences and signs free of graffiti. Remove all graffiti daily using methods which cause no damage to the work or existing facilities.

4. Sweep all pedestrian walkways and dispose of debris around the site perimeter on a daily basis.

1.11 DRAINAGE CONTROL

A. Grade site to drain. Maintain excavations free of standing water.

B. Provide, operate, and maintain pumping equipment as needed to control water at the site.

C. Protect site from erosion caused by flowing water.

1.12 CONFINED SPACE ENTRY

A. It is the responsibility of Non-Profit Entity to provide all equipment or assistance to make the confined space safe for entry by the City or its representative per the California Administration Code, Title 8, and General Industry Safety Orders Entitled "Confined Spaces".

1.13 TEMPORARY PROJECT SIGN

A. Project sign image and layout shall conform to the graphical layout and color approved by the City.

B. Non-Profit Entity shall obtain the City's approval of the proposed locations, height, and mounting details for each project sign. The project signs may be mounted on construction fence, face of wall, or on posts.

C. ONESF Project Sign Fabrication:

1. Size: Project sign shall be 4-feet by 6-feet.

2. Digital File: Project sign shall match the final graphical layout provided by the City, including the colors and fonts. For more information, refer to the latest Sign Guidelines available from the following website: http://onesanfrancisco.org/ (Click on “Data + Resources > Signage and Style Guide”)

    a. The design of Non-Profit Entity furnished project signs shall be in strict accordance with the ‘ONESF’ Guidelines established by the City.

3. Mounting Material: Project sign shall be mounted on Medium Density Overlay board (MDO), at least 3/4-inch thick.

4. Printing: Project sign shall be printed on a 4-color CMYK printer.

5. Coating: Use UV and Anti-Graffiti coatings.

6. Quality: Project sign shall last the entire construction duration.

D. Non-Profit Entity shall submit a mock-up of the Project sign in color, on bond paper, 11x17 size, to the City for approval prior to fabrication.

E. Non-Profit Entity shall install the required project sign(s) shall maintain project sign(s) in good condition for the duration of the contract.

F. After Substantial Completion, Non-Profit Entity shall remove each Project sign from the site as its property, and restore area per plans or as directed by the City at no additional cost to the City.

G. Damaged Project sign that cannot be repaired on site shall be replaced at no additional cost to the City.

1.14 TEMPORARY TOW AWAY/NO-PARKING SIGNAGE

A. On January 1, 2017, temporary occupancy permits and all other permits that include tow-away signage, aside from excavation permits activated through 311, will not be activated and permittees will not have tow away rights unless and until time and date stamped photos evidencing that signage was posted in the correct location a minimum of 72 hours prior to the time at which the parking restrictions shall become effective under the permit have been uploaded to the San Francisco Public Works, Bureau of Street Use and Mapping (SFPW/BSM) Tow-Away Sign Database. See Appendix B – Tow-Away Sign Activation and Photo Upload Process.

B. Non-Profit Entity is advised that Sign Ordinance PWC Article 15, Section 724 which will require the applicant (Non-Profit Entity) to input the amount of right of way they will occupy during construction activities for a specific permit, to be issued by SFPW/BSM for all work in the Public Right-of-Way. Non-Profit Entity shall enter times of operation during construction with the proposed start and end times and specific calendar days. This information will be printed on the tow-away signs. Refer to Tow Away Manual at http://www.sfpublicworks.org/sites/default/files/4506-Tow-Away%20User%20Guide.pdf.

1. The location of the Construction Zone will be entered as part of the excavation permit, which will include the length of occupancy (distance in linear feet). This information and date. Once a permit has been approved, the applicant is informed off the approval via email and will be provided a hyperlink to create/modify the tow/away signs prior to printing.

2. The information required at time of permit will update the database and will validate that the total linear footage of construction occupancy does not exceed 1,200 linear feet. Upon completion of any adjustment to the tow-away signs, the applicant can determine which street segment to print out and may choose to either print one of two general tow-away sign template or request the Department of Public Works to print the tow-away signs. Non-Profit Entity shall pay for the printing of each sign.

3. Size: Tow-Away/No-Parking Signs shall be 11’ wide x 17’ tall.

4. Digital File: Project sign shall match the final graphical layout provided by the City, including the colors and fonts. The design of Non-Profit Entity furnished project signs shall be in strict accordance with the DPW Order for Towaway Signs located at: http://sfpublicworks.org/sites/default/files/4508-TowAway-2015-Template.pdf.

5. Non-Profit Entity shall use only paper types which shall be waterproof durable; tear resistant’ with laser paper labels type and templates: 11 x 17 10 PT CV, 215 grams/m^2

6. Printing: Project sign can be printed on a Xerox Phaser 7800, or equivalent that can print 11x17 120-130 lb paper. All Tow-Away/No-Parking Signs shall be secured and paid for by Non-Profit Entity.

7. Non-Profit Entity shall maintain Tow-Away/No-Parking Sign (s) in good condition as needed throughout the duration of the Contract.

8. After substantial completion, Non-Profit Entity shall remove each Tow-Away/No-Parking Sign from the site as its property.

9. Damaged Tow-Away/No-Parking Sign that cannot be repaired on site shall be replaced at no additional cost to the City.

1.15 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Non-Profit Entity shall:

1. Remove temporary above grade or buried utilities, construction equipment, temporary structures and facilities, unused materials, rubbish and debris prior to Final Inspection. Restore facilities to conditions prior to construction, to the satisfaction of the City.

2. Clean and repair damage caused by installation or use of temporary work.

3. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

4. Remove field offices and temporary utility services from the Site.

1.16 STORAGE AND STOCKPILING

A. Non-Profit Entity shall make its own arrangements for off-site storage or shop areas and off-site construction parking facilities. On-site storage shall be limited to materials and equipment currently being installed or utilized.

B. If necessary, Non-Profit Entity shall arrange for temporary off-site storage of equipment and materials at its discretion. No additional compensation shall be provided from the City.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

APPENDIX A (01 50 00): TOW-AWAY SIGN ACTIVATION AND PHOTO UPLOAD PROCESS



Public Works Tow-Away Sign Activation and Photo Upload Process

EFFECTIVE DATE: January 1, 2017

PERMITS AFFECTED:

The tow-away sign activation and photo upload process change is applicable to all temporary occupancy permits and all other permits that include tow-away signage.

Excavation permits activated through 311 will not be impacted.

ACTIVATION AND PHOTO UPLOAD PROCESS:

STEP 1: Request a street space permit from Public Works.

STEP 2: Once permit is approved a link for tow-away signs will be provided via email along with a link to the Bureau of Street-Use and Mapping tow-away sign database.

STEP 3: Print signs and post them at the permitted location every 20 feet no less than 72 hours in advance of the time the parking restrictions are to become effective.

STEP 4: Click on the link provided in the confirmation email and take photos showing the placement of the signs.

STEP 5: Click submit and the photos will be submitted to Bureau of Street-Use and Mapping for review.

STEP 6: A confirmation email will be sent stating the photos were accepted, the permit is active, and tow-away rights are reserved.

NOTE: If photos are inadequate, you will receive a rejection email identifying the deficiencies to be corrected.

PHOTO REQUIREMENT 1:

A scene-setting photo clearly showing the signs are posted in the permitted location every 20 feet.

PHOTO REQUIREMENT 2:

A close-up photo of a tow-away sign that enables essential information on the sign to be confirmed.

END OF SECTION

SECTION 01 57 26 - TEMPORARY PROTECTION OF CATCH BASINS AND STORM DRAIN INLETS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Documenting and protecting catch basins and storm drain inlets as incidental work.

1.2 RELATED SECTIONS

A. 01 71 33 - Protection of Adjacent Construction

PART 2 - PRODUCTS

2.1 MATERIALS

A. Non-Profit Entity shall provide all labor and materials necessary to protect debris from entering the sewer system.

PART 3 - EXECUTION

3.1 PREPARATION

A. Non-Profit Entity shall photograph all catch basins within the limits of work. Each catch basin shall have at least two photos, one from the top view and one from the side view along the flow line. Refer to Section 01 71 33-1.6B.

B. Non-Profit Entity shall notify the City of any clogged catch basin or storm water inlet immediately upon discovery.

1. Call SFPUC Sewer Operations at 415-695-2096 to report catch basins or storm water inlets containing debris in the barrels and/or cast iron traps.

3.2 DRAINAGE PROTECTION

A. Non-Profit Entity shall be responsible for protecting and keeping in operation all storm water inlets and catch basins throughout the entire Project Site for the duration of the Project until Final Acceptance.

B. Non-Profit Entity shall take adequate measures to prevent the impairment of the operation of the sewer system. Non-Profit Entity shall prevent construction material, pavement, concrete, earth, paints, thinner, solvents, and other debris or toxic material from entering a sewer or sewer structure including surface flow collection system, such as catch basins and culverts.

C. Prior to the final inspection and acceptance, Non-Profit Entity shall check all storm water inlets and catch basins within the project limits for debris.

END OF SECTION

SECTION 01 71 33 - PROTECTION OF EXISTING FACILITIES AND ADJACENT CONSTRUCTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Section includes requirements for protection of existing facilities and improvements.

1.2 RELATED SECTIONS

A. Section 01 50 00 –Temporary Facilities and Controls

1.3 EXISTING UTILITIES AND IMPROVEMENTS

A. Non-Profit Entity shall:

1. Notify Underground Service Alert (USA) prior to excavating in the public right of way areas so that Utility Owners may be advised of the work and may field mark or otherwise protect and warn Non-Profit Entity of their existing utility lines. Contact USA, telephone 1800227-2600, .

    a. Provide reasonable access and do not hinder or otherwise interfere with any company or agency having underground facilities in removing, relocating, or protecting such facilities.

2. Verify the actual locations and depths of all utilities indicated or field marked. Make a sufficient number of exploratory excavations at Non-Profit Entity's expense of all utilities that may interfere with the work sufficiently in advance of construction to avoid possible delays to Non-Profit Entity's work.

    a. Notify the City if such exploratory excavations show the utility location as shown or as marked to be in error.

    b. When utility lines are encountered within the area of Non-Profit Entity's operations, notify the City and the Utility Owners sufficiently in advance for the necessary protection measures to be taken to prevent interruption of service or delay to Non-Profit Entity's operations.

B. Non-Profit Entity shall protect all existing utilities, facilities, and structures, public or private, and will be held responsible for all damage caused by Non-Profit Entity not exercising due care to avoid such damage.

C. Overhead Contact System: Work on or under the overhead contact system shall be performed with lines and feeders energized unless shutdown of the system is granted. Notify the SFMTA at least 10 days prior to performing work on energized overhead trolley wires, feeder circuits, or at substations, so that the SFMTA may arrange for any necessary clearances and inspections.

1. Non-Profit Entity is alerted to the condition that overhead trolley wires and feeder cables distribute electrical energy at up to 700 Volts dc. Comply with the "High Voltage" provisions of the California Code of Regulations (Title 8, Division 1, Chapter 4, and Subchapter 5).

2. Take precautions to avoid accidents and damage to the overhead contact wires, and riser and feeder cables.

D. Survey Monuments and Bench Marks: Non-Profit Entity shall bring to the attention of the City all survey monuments, bench marks, property line marks and the like, encountered on the work. Survey monuments, bench marks, or other survey marks or points shall not be removed or disturbed until referenced or relocated by the City or other agency or party having an interest therein, and then removed only at the time and in the manner specifically approved by the City. Non-Profit Entity shall bring all City monument frames within the limits of the work to grade, with the express provision that any and all work associated with the removal and relocation of such frames, with their covers, shall be under the direct supervision of the City, and all such work shall be considered incidental work. The cost of re-establishing and resetting survey monuments, bench marks or other survey marks or points lost or destroyed through the carelessness or negligence of, or inadvertently by, Non-Profit Entity shall be at the sole expense of Non-Profit Entity.

1.4 SAFEGUARDING OF EXISTING FACILITIES

A. Non-Profit Entity shall perform all work, including dewatering operations, in such a manner as to avoid damage to existing fire hydrants, power poles, lighting standards, and all other existing utilities, facilities, trees and vegetation, and structures. Non-Profit Entity shall be responsible for any damage due to its failure to exercise due care.

B. Broken concrete, debris, etc., shall be immediately removed from the Project Site as Non-Profit Entity's property and shall be disposed of in a legal manner.

C. Non-Profit Entity shall take adequate measures to prevent the impairment of the sewer system and to prevent construction material, pavement concrete, earth or other debris from entering a sewer, sewer structures, catch basin, or storm water inlet. Non-Profit Entity shall restore damaged utilities and facilities to a condition equal to or better than they were prior to such damage.

1.5 RESTORATION OF PAVEMENT

A. General: All paved areas cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing undisturbed areas, except where specific resurfacing requirements are called for in the Contract Documents or in the permit requirements of the Governmental Entity issuing the permit. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

B. Conserving Distinctive Sidewalk Elements: For work located within landmark and/or conservation historic districts, all distinctive sidewalk elements such as brick surfacing, brick gutters, granite curbs, cobblestones, non-standard sidewalk scoring and streetscape elements that appear to be 45 years or older will be treated as potentially character defining features of their respective historic districts.

1. Non-Profit Entity shall avoid damaging and protect in place any features described above and shall notify the City of any feature not identified on the plans that is in conflict with the proposed work.

2. Granite curb shall only be replaced with concrete curb on curved sections and as part of the curb ramp construction.

C. Temporary Resurfacing: Whenever required by the Authorities Having Jurisdiction, place temporary surfacing promptly after backfilling and maintain such surfacing in a satisfactory condition for the period of time before proceeding with the final restoration.

D. Permanent Resurfacing: Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in neat straight lines. All pavement restoration shall be constructed to finished grades compatible with undisturbed adjacent pavement.

E. Restoration of Sidewalks or Driveways: Wherever sidewalks, curbs and gutters, or driveways have been removed for construction purposes, place suitable temporary sidewalks, curbs and gutters, or driveways promptly after backfilling and maintain them in satisfactory condition for the period of time before the final restoration is made.

1.6 JOINT SURVEY TO ESTABLISH AUTHENTICITY OF POSSIBLE CLAIMS

A. Non-Profit Entity shall use such methods and shall take adequate precautions to prevent damage to existing buildings, structures, and other improvements during the prosecution of the work.

B. Non-Profit Entity shall retain an experienced photographer to perform preconstruction examination and, if necessary, post-construction survey of all nearby structures, including photographs of all catch basins within the limit of work and nearby intersections. Each catch basin shall have at least two photos, one from the top view, and one from the side view along the gutter line. The survey shall be made using digital still photographs or digital videos saved to compact discs. The survey shall be considered incidental work and no separate payment will be made therefor.

C. Prior to the commencement of Construction Work, the Non-Profit Entity shall arrange for a joint examination with the City of existing buildings, structures and other improvements in the vicinity of the Project Site, as applicable, which might be damaged by Non-Profit Entity's Construction Work.

D. The examination of the exterior of existing buildings, structures, and other improvements located within 25 feet of the construction excavation will be made jointly by authorized representatives of Non-Profit Entity, the City, and property owners. The scope of each examination shall include, but is not limited to, recording of cracks in structures, settlement, leakage and the like.

E. Records in duplicate of all observations shall be prepared and delivered by the photographer to the City and to Non-Profit Entity. The photographer may be required to attest to the fact that they took the pictures; however, in no case, will they determine the cause cracks, settlement, leakage, or like condition nor is photographer being retained for the purpose of engineering evaluation.

F. The above records and photographs are intended for use as indisputable evidence in ascertaining the extent of any damage which may occur as a result of Non-Profit Entity's operations and are for the protection of the adjacent property owners, Non-Profit Entity, and the City, and will be a means of determining whether and to what extent damage, resulting from Non-Profit Entity operations, occurred during the Construction Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01 74 50 - MATERIAL REDUCTION AND RECOVERY PLAN

PART 1 - GENERAL

1.1 SUMMARY

A. This section governs the recovery of construction and demolition debris.

B. Non-Profit Entity is responsible for complying with all aspects of this Section.

C. On October 16, 2006, the San Francisco Mayor issued Executive Directive 06-05 requiring all construction contracts to divert 75% of construction and demolition debris from landfill disposal sites. This directive is supported by existing policies that require reuse, recycling, and management of construction and demolition debris. Some of these policies are described below.

D. The City and County of San Francisco adopted an ordinance (No. 27-06) that creates a mandatory program to maximize the recovery of all construction and demolition debris.

1. The Ordinance requires that mixed construction and demolition debris material be transported off-site by a Registered Transporter and taken to a Registered Facility.

2. Material source separated at the job site shall be taken to a facility that reuses or recycles such material.

3. This ordinance applies to all construction projects within the City and County of San Francisco, such as new construction, remodels, tenant improvements, additions, repairs, and full and partial demolitions.

4. This ordinance prohibits any construction and demolition debris from being placed in trash or sent directly to a landfill.

E. Non-Profit Entity shall perform all work and meet all requirements in this Section at no additional cost to the City.

F. Related Requirements:

1. Section 01 50 00 -Temporary Facilities and Controls

2. Section 01 77 00 - Closeout Procedures

1.2 REFERENCES

A. Mayor’s Executive Directive 06-05, Recycling and Resource Conservation, October 16, 2006.

B. San Francisco Environment Code

1. Chapter 5, Resource Conservation Ordinance.

2. Chapter 7, Municipal Green Building Requirements.

3. Chapter 14, Construction and Demolition Debris Recovery Ordinance.

4. Chapter 16, Food Service and Packaging Waste Reduction Ordinance.

5. Chapter 19, Mandatory Recycling and Compositing.

C. 2022 California Green Building Standards Code, Title 24, Part 11 (CALGreen):

D. California Integrated Waste Management Act of 1989 (California Public Resources Code 40000 et. seq.) - Assembly Bill 939.

E. U.S. Green Building Council's Leadership in Energy and Environmental Design

1. LEED Reference Guide for Building Design and Construction version 4.0.

2. LEED Reference Guide for Interior Design and Construction version 4.0

F. San Francisco Board of Supervisors Resolution Nos. 530-04 and 679-02 establishing a zero waste goal.

G. Food Service Waste Reduction Ordinance as set forth in San Francisco Environment Code Chapter 16.

H. Refuse Collection and Disposal Ordinance, adopted November 8, 1932.

1.3 DEFINITIONS

A. Alternative Daily Cover (ADC): Materials, other than soil, that have been approved by the California Department of Resources Recycling and Recovery ("CalRecycle") or a successor agency for use as a temporary overlay on an exposed landfill face.

B. Beneficial Reuse: The reuse of material at a landfill that does not include ADC but does include use of materials for the following purposes: alternative intermediate cover; final cover foundation layer; liner operations layer; leachate and landfill gas collection system; construction fill; road base; wet weather operations pads and access roads; and, soil amendments for erosion control and landscaping. "Beneficial reuse" shall not include disposal of material at a landfill.

C. City-owned Facility: Any building owned by the City and County of San Francisco. "City-owned Facility" includes City-owned facilities or portions thereof that the City leases to non-City entities.

D. City Leasehold: A building or portion thereof owned by others where the City and County of San Francisco is a tenant.

E. City's Waste Tracking Platform: An on-line waste tracking platform hosted by Green Halo Systems that can be found at https://wastetracking.com/city/sfgov/ .

F. Compostable: Any material that can be broken down into, or otherwise become part of, usable compost (e.g., soil-conditioning material) in a safe and timely manner as accepted in San Francisco's compostables collection program, such as food scraps, soiled paper and plant trimmings.

G. Construction and Demolition Debris or C&D Debris: Building materials and solid waste generated from construction and demolition activities including, but not limited to, fully cured asphalt, concrete, brick, rock, soil, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, fixtures, plastic pipe, metals, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction, deconstruction, demolition or land developments. This term does not include refuse regulated under the 1932 Refuse Collection and Disposal Initiative Ordinance or sections of the Municipal Code that implement the provisions of that ordinance or materials from the public right-of-way. Hazardous material, as defined in California Health and Safety Code section 25100, et seq., as amended, is not construction and demolition debris.

H. Disposal: The final deposition of material at a legally operating permitted landfill that does not include beneficial reuse or at a permitted transformation facility. A legally operating, permitted landfill includes Class III landfills and inert fills. Disposal of inert materials at inert fills or inert backfill sites does not constitute recycling.

I. Diversion: Use of material for any purpose other than disposal in a landfill or transformation facility, such as source reduction, reuse, recycling, and composting activities that do not result in material being disposed at permitted landfills and transformation facilities.

J. Landfill: A facility that (i) accepts for disposal in or on land non-hazardous material such as household, commercial, and industrial waste, and waste generated during construction, remodeling, repair and demolition operations, and (ii) has a valid current solid waste facilities permit from the California Department of Resources Recycling and Recovery (CalRecycle).

K. Mixed Construction and Demolition Debris Material or Mixed C&D Debris Material: Construction and demolition (C&D) debris or C&D debris that are combined on the project site and hauled away for sorting.

L. Recover or Recovery: Any activity, including source reduction, deconstruction and salvaging, reuse, recycling, composting, or anaerobic digestion which causes materials to be recovered for use as a resource and diverted from disposal. Recovery shall not include engineered municipal solid waste conversion.

M. Recyclable Material: Any material or product that can be sorted and reconstituted, for the purpose of using the altered form in the manufacture of a new product, as accepted in San Francisco's recycling collection program, such as paper, bottles and cans. Recycling does not include burning, incinerating, converting, or otherwise thermally destroying solid waste.

N. Recycling: The process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. Recycling does not include burning, incinerating, or thermally destroying solid waste, nor shall it include disposal.

O. Recycling Facility: An operation or person that collects and processes materials for recycling.

P. Registered Transporter: Anyone who is hired to remove Mixed Construction and Demolition Debris Material from a construction and/or demolition site in San Francisco, using a vehicle with more than two axles or two tires per axle (such as a large pickup truck with four tires on the rear axle or three-axle dump trucks) and is hauling at least one (1) cubic yard of Mixed Construction and Demolition Debris Material and holds a valid registration from the City and County of San Francisco pursuant to Chapter 14 of the Environment Code. A Registered Transporter is obligated to take all mixed material only to a Registered Facility.

Q. Registered Facility: Any facility that accepts Mixed Construction and Demolition Debris Material for processing and recycling and holds a valid registration issued by the City and County of San Francisco pursuant to Chapter 14 of the Environment Code.

R. Reuse: Using an object or material again either for its original purpose or for a similar purpose without significantly altering the physical form of the object or material.

S. Source Reduction: Any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce waste tonnage generated, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials.

T. Source Separated Materials: Materials that have been separated or kept separate from the solid waste stream, at the point of generation, for the purpose of reuse, recycling or composting in order to return them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.

U. Solid Waste: Materials designated as non-recyclable and discarded for the purposes of disposal.

V. Universal Waste (CCR Title 22, Division 4.5, Chapter 23): Certain specified hazardous materials that are more common and pose a lower risk to people and the environment than other hazardous materials. Universal wastes are handled with reduced management requirements. Examples of universal waste: batteries, fluorescent tubes (lamps), electronic devices (cell phones, computers, televisions), cathode ray tubes (CRTs), mercury wastes (thermometers and toys), and non-empty aerosol cans.

W. Treated Wood Waste (CCR Title 22, Division 4.5, Chapter 34): Dimensional lumber and other wood products which have been removed from service and were treated with preserving chemicals that protect the wood from insect attack and fungal decay during its use. Examples include fence posts, sill plates, landscape timbers, pilings, railroad ties, guardrails, and decking. Treated Wood Waste is a hazardous material in California and must be managed according to specific regulations.

X. Waste Diversion: a management activity that disposes of waste through methods other than incineration or landfilling. Examples include reuse and recycling.

1.4 GENERAL REQUIREMENTS

A. Recovery Goal: In order to meet the City's zero waste goal, the goal for this Project is to recover no less than 75% of the construction and demolition debris material from landfill disposal through waste prevention, reuse, and recycling. If a construction site contains Hazardous Materials and/or Universal Wastes, the 75% minimum recovery requirement shall pertain to all non-Hazardous Material. No construction and demolition debris material shall be disposed in garbage or taken directly to landfill.

B. In order for construction and/or demolition debris to be considered hazardous, such as containing asbestos or lead, it shall be evaluated and determined to be hazardous by an independent professional such as a Cal/OSHA or DOSH Certified Asbestos Consultant. The waste determination and other verification shall be included with the C&D Debris Management Plan (refer to Paragraph 1.5 below), together with a list of hazardous materials found at the project site and plans for proper disposal.

C. All Hazardous Materials, including Universal Wastes and Treated Wood Waste, shall be documented separately, and a summary of all manifests or other disposal documentation, including material description and weights, shall be provided to the City.

D. Highest and Best Use: Non-Profit Entity shall employ the following hierarchy of highest and best use for handling construction and demolition debris as follows:

1. Implement reduced material usage or reuse of materials before any recycling;

2. Implement recycling or reuse of source separated material before any recycling of mixed construction and demolition debris material;

3. Implement recycling of mixed construction and demolition debris material before all other forms of disposal.

E. Recycling Requirements:

1. Source Separated Materials: Non-Profit Entity shall develop and implement procedures for source-separation, to the greatest extent feasible, of the following types of recyclable or reusable materials:

    a. Asphalt.

    b. Acoustical ceiling tiles.

    c. Bricks, stone(s), granite, and other finished stone-type materials.

    d. Carpet and padding.

    e. Concrete, concrete block, slump stone (decorative concrete block).

    f. Corrugated cardboard.

    g. Dimensional lumber and beams.

    h. Fixtures, hardware, doors, and windows.

    i. Metal, ferrous and non-ferrous.

    j. Mixed Inerts.

    k. Rigid plastic.

    l. Soil/dirt/rock.

    m. Trees, Landscape Debris, cleared vegetation and cut-off or other wood scraps.

    n. Wall board, gypsum sheetrock.

2. Mixed Construction & Demolition Debris Material:

    a. For projects within the legal and geographical boundaries of the City and County of San Francisco, mixed C&D debris material must be taken to a Registered Facility by a Registered Transporter, per Environment Code 14. Registered Facilities Recovery (Diversion) Rates are listed at: https://sfenvironment.org/construction-demolition-resources

    b. For projects outside San Francisco, if mixed C&D debris material is taken to a non-Registered Facility the diversion rate approved by the local jurisdiction shall be used, and official documentation of the diversion rate approved by the local jurisdiction must be provided by Non-Profit Entity. If a facility does not have a locally approved recovery/recycling rate, the recovery (diversion) rate is calculated as zero.

3. Handling of Recyclable Materials:

    a. Non-Profit Entity shall assure that recyclable or reusable materials be free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process. Non-Profit Entity shall clean materials that are contaminated before placing it in collection containers.

    b. Non-Profit Entity shall arrange for collection of reusable and recyclable materials by delivery to the appropriate reuse and/or recycling centers for purposes of reuse and/or recycling.

c. All mixed C&D debris material from projects in San Francisco must be taken to a Registered Facility authorized to process the material, and it must be hauled by a Registered Transporter. For the lists of Registered Facilities and Registered Transporters refer to the website: https://sfenvironment.org/construction-demolition-resources

4. No construction and demolition debris shall be burned, buried or otherwise disposed of on the project site.

F. Non-Profit Entity is prohibited from sending any construction and demolition debris directly to landfill or to any facility that would incinerate or otherwise process such debris using high temperature technology without submitting a written request to and receiving approval from the San Francisco Department of the Environment; see Form A and Form B.

G. Requirements only for construction contracts within the legal and geographical boundaries of the City and County of San Francisco:

1. Registered Transporters and Registered Facilities: Only Registered Transporters can remove mixed C&D debris material and they must take this material to a Registered Facility. Source separated material at the job site shall be taken to the appropriate recycling or reuse facility.

a. For a list of Registered Facilities and Registered Transporters refer to the website: https://sfenvironment.org/construction-demolition-resources

2. Full Demolition Requirements: Non-Profit Entity conducting full demolition of an existing structure must submit a Demolition Debris Recovery Plan (DDRP) to the San Francisco Environment Department (SFED).

a. The DDRP must demonstrate a minimum of 75% recovery from landfill of demolition debris, including materials source separated for reuse or recycling.

b. The DDRP must be submitted to and approved by SFED before the Department of Building Inspection will issue a Full Demolition Permit.

c. This requirement does not apply to City construction contracts outside of the legal and geographical boundaries of the City and County of San Francisco.

d. The DDRP is available at the following website: https://sfenvironment.org/construction-demolition-resources

H. Mixed C&D debris material from projects outside the legal and geographical boundaries of the City and County of San Francisco must be taken to a Recycling Facility that processes the material to achieve maximum recycling. If the material is taken to a facility not registered with San Francisco, the local jurisdiction's recycling rate for that facility shall be used provided official documentation from the local jurisdiction is attached to all submittals as required in Paragraphs 1.5, 1.6 and 1.7 below. If a facility does not have a local approved recycling rate, the diversion rate is calculated as zero.

I. Universal Wastes: Non-Profit Entity shall handle and dispose of all hazardous material, including Universal Waste in accordance with the requirements of the California Department of Toxic Substances Control (DTSC). Refer to DTSC website: www.dtsc.ca.gov. In general, Universal Waste may not be discarded in solid waste landfills or with non-Hazardous Materials collected for recycling or composting. Non-Profit Entity shall comply with all Hazardous Material regulations, including, but not limited to, the following:

1. Universal Wastes shall be stored in containers so that they do not spill, leak, break, or are released into the environment.

2. Label or mark universal wastes, or their containers, to identify their types.

3. Send all universal waste to a facility authorized to collect, recycle or dispose of universal waste.

4. Do not dispose of universal waste in the trash.

5. Do not accumulate more than 5,000 kilograms of Universal Waste at any one time.

6. Train employees in proper Universal Waste management including handling, packaging, storing and labeling the Universal Waste, as well as how to respond to releases. This training may be accomplished by simply giving employees written instructions about Universal Waste.

7. Keep record of all shipments and receipts of Universal Waste for three years.

J. Treated Wood Waste: For complete information on handling and disposal of Treated Wood Waste (TWW), refer to the fact sheet available from the DTSC website. For incidental TWW wastes generated during construction, Non-Profit Entity shall comply with the following minimum requirements:

1. Keep TWW segregated from other materials.

2. Store no more than 1,000 pounds of TWW for no longer than 30 days. In the event that Non-Profit Entity stores more than 1,000 pounds of TWW or stores TWW for more than 30 days, Non-Profit Entity shall comply with additional requirements for routine generators of TWW. Refer to DTSC fact sheet.

3. Label all TWW bundle/shipments with the following information:

TREATED WOOD WASTE – Do not burn or scavenge.

TWW Handler
Name:_____
Address:_____
Accumulation Date:_____

4. Take TWW to an authorized TWW facility. See the listings at the end of the factsheet for information on facilities who have been authorized to accept TWW in California.

5. Keep records of all shipments of TWW for three years.

K. Waste Reduction: Non-Profit Entity shall implement waste reduction measures, including, but not limited to, the following:

1. Eliminating the procurement of unneeded supplies;

2. Reduce waste by printing and copying double-sided;

3. Submit all submittals, reports, and forms in electronic format (PDF);

4. Fully participate in available and required recycling and composting programs; and

5. Purchase products made with recycled content such as paper and recycled aggregate.

L. LEED:

1. Non-Profit Entity shall comply with the requirements of LEED version 4.0 MR Prerequisite Construction and Demolition Waste Management Planning.

2. The 75% minimum recovery requirement cannot include any alternate daily cover (ADC) in order to meet the requirements of LEED version 4.0 MR Credit Construction and Demolition Waste Management to earn the project 2 points.

3. Non-Profit Entity shall submit the following items in electronic format by uploading to the City's Waste Tracking Platform and in accordance with Paragraphs 1.5, 1.6, and 1.7 below:

   a. Material Reduction and Recovery Plan.

   b. Material Reduction and Recovery Monthly Summary of Recovery (Diversion) and supporting documentation.

   c. Material Reduction and Recovery Final Report.

1.5 MATERIAL REDUCTION AND RECOVERY PLAN

A. Non-Profit Entity shall comply with the requirements under this Paragraph 1.5 for the Project.

B. Before commencement of the D&C Work at the Project Site, Non-Profit Entity shall prepare a Material Reduction and Recovery Plan (MRRP) to be discussed with the City. To prepare the MRRP, Non-Profit Entity shall conduct a site assessment to estimate the types and quantities of materials that will be generated by construction and/or demolition at the site and which materials are anticipated to be feasible and practical for reuse and recycling. .

C. Non-Profit Entity shall schedule a meeting with the City to discuss its proposed MRRP to develop a mutual understanding regarding the City's reuse and recycling policies and goals and their application to the Project. Non-Profit Entity must manage all Construction Workg and demolition debris to meet a minimum recovery rate of 75%.

   1. The MRRP will be used as a submittal for compliance with the waste management plan requirements of LEED version 4.0 MR Prerequisite Construction and Demolition Waste Management Planning. The MRRP shall include any and all required information to meet the LEED prerequisite.

D. Non-Profit Entity shall obtain tonnage estimates for all construction and demolition debris from all Non-Profit Entity's and compile data from all Non-Profit Entity's into the MRRP. The MRRP shall include, but not be limited to, the following:

   1. Non-Profit Entity's information and Project identification.

   2. Procedures to be used for debris management.

   3. A list of the materials and estimated quantities to be reused or recycled.

   4. The names, locations, and permit or license, as applicable, of recycling and reuse facilities and Registered Facilities (for mixed C&D debris material) that Non-Profit Entity plans to use for the Project.

   5. Procedures for source separation for the materials listed in subparagraph 1.4E "Recycling Requirements" of this Section.

6. Source Reduction: Describe any project practices that will reduce waste at the source, such as requiring vendors to deliver materials in reusable packaging.

7. On-site Processing: Describe procedures in which materials are reused on-site, such as grinding materials for use on-site, or reuse of lumber for concrete frames, etc.

8. Procedures to educate and train all employees and Non-Profit Entitys on recycling and reuse procedures to be used at the jobsite.

E. Non-Profit Entity shall use the City's Waste Tracking Platform to provide all MRRPs and related reports for the Project. The City will create a Green Halo project account for use by Non-Profit Entity. Non-Profit Entity shall then use this account to prepare and submit the initial MMRP following these steps:

1. Register the Project and create a project tracking number

2. Provide the MRRP (https://wastetracking.com/city/sfgov/).

3. Coordinate the MRRP with the LEED Construction and Demolition Debris Management Plan (if the Project is pursuing a LEED certification) requirements.

4. Comply with the City and County of San Francisco's requirement for a minimum 75% recovery rate from landfill.

5. Describe Non-Profit Entity's approach to managing the Project's construction and demolition debris.

6. When complete, click "Submit" for review and approval.

F. The MRRP is subject to approval by the City. Non-Profit Entity shall revise and resubmit the MRRP as required by the City.

G. Review of Non-Profit Entity's MRRP shall not relieve Non-Profit Entity of responsibility for compliance with applicable laws and regulations governing control and disposal of solid waste or other pollutants.

1.6 MONTHLY UPDATES OF MATERIAL RECOVERY

A. Non-Profit Entity shall provide monthly updates through the City's Waste Tracking Platform by uploading new information, quantifying the construction and demolition debris generated and reused, or recycled. Non-Profit Entity shall upload information regarding transporter method, recovered materials, facilities used, and weight tickets generated as well as any other applicable supporting files and additional requirements.

1.7 MATERIAL REDUCTION AND RECOVERY FINAL REPORT

A. Upon Final Acceptance of the Project, Non-Profit Entity shall submit a Final Recovery Report to the City's Waste Tracking Platform showing weight of all construction and demolition debris material recovered for the entire project and the overall recovery rate achieved.

B. The Final Recovery Report shall be prepared into one plan/report by Non-Profit Entity with data from all Non-Profit Entity's and submitted to the City.

1. The Final Recovery Report shall be used as a submittal for compliance with the final waste report requirements of LEED version 4.0 MR Prerequisite Construction and Demolition Waste Management Planning. The Final Recovery Report shall include any and all required information to meet the LEED prerequisite.

1.8 JOB SITE ADMINISTRATION

A. Non-Profit Entity shall review the environmental goals of the Project with Non-Profit Entity's of all tiers.

B. Non-Profit Entity shall make a proactive effort to increase awareness of these goals and ensure full compliance to the MRRP and LEED Construction and Demolition Debris Management Plan among Non-Profit Entity's employees, contractors, and other workers.

C. Non-Profit Entity shall communicate the presence of demolition debris which is Hazardous Material to all workers on the job site and shall establish and clearly identify Hazardous Material storage areas. Non-Profit Entity shall discuss practices and alternatives to minimize worker exposure to potentially harmful substances expected to be encountered on the job site.

D. Non-Profit Entity shall provide green, blue and black refuse bins and appropriate signs for all temporary field offices to separate recyclable and compostable materials from the trash and subscribe to adequate collection services. To subscribe to these services, contact Recology San Francisco at 415-330-1300

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 02 41 16 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of existing building.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.
4. Salvage of existing items
5. Non-Profit Entity's Demolition Plan.

B. Related Requirements:

1. Temporary Facilities and Controls: Section 01 50 00; for temporary construction, protection facilities, and environmental-protection measures for building demolition operations.
2. Information Sheet No. S-04 dated June 22, 2015 on the subject of Demolition Permits as published by the San Francisco Department of Building Inspection (SFDBI).

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or recycled.

B. Remove and Salvage: Detach items from existing construction and deliver them to City as directed.

C. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or recycled.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-Demolition Conference: Conduct conference at Project Site. Review methods and procedures related to building demolition including, but not limited to, the following:

1. Inspect and discuss condition of construction to be demolished.
2. Review structural load limitations of existing structures.
3. Review and finalize Demolition Plan and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.

1.4 MATERIAL SALVAGE

A. The City will hand over the site in the Leave-Behind Condition.

B. Any items of interest or value to City that may be encountered during building demolition and are noted in this Agreement shall be salvaged and remain City's property.

C. Carefully remove and salvage items or objects in a manner to prevent damage and deliver promptly to City unless otherwise specified.

D. Coordinate with City any special procedures for removal and salvage.

1.5 ACTION SUBMITTALS

A. Demolition Plan as specified below.

1.6 INFORMATIONAL SUBMITTALS

A. Items enumerated under Part C of SFDBI Information Sheet No. S-04.

B. Qualification Data: For demolition firm.

C. Inventory: After building demolition is complete, submit a list of items that have been removed and salvaged.

D. Pre-demolition photographs.

E. Sustainable Design (LEED):

1. General:

a. Submit information necessary to establish and document compliance with the LEED Certification goals for this Project.

b. Sustainable design submittals are in addition to other submittals.

c. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance.

2. The following information shall be provided:

a. Materials and Resources Credit for Construction and Demolition Waste Management: Comply with Section 01 74 50 "Material Reduction and Recovery Plan."

1.7 DEMOLITION PLAN

A. The Non-Profit Entity shall submit a complete Demolition Plan detailing procedures and sequence for removing the existing structures including all features necessary to remove the structure in a safe and controlled manner to insure stability of the structure at any given time.

B. Thoroughly investigate the condition of the existing structures to be removed before proceeding with the Demolition Plan.

C. The Demolition Plan shall consist of the following:

1. Detailed sequence of demolition and removal work, with starting and ending dates for each activity.

2. Interruption of utility services.

3. Coordination for shutoff, capping, and continuation of utility services.

4. Details and locations of shields or other protective measures in sufficient numbers to ensure that people, property and improvements will not be endangered.

5. All other information as required and described in SFDBI Information Sheet No. S-04.

D. The Non-Profit Entity's Engineer of Record shall be present at the site as required when removal operations are in progress. Should an unplanned event occur, the Engineer of Record shall report immediately the procedure of operation to correct or remedy the occurrence. The Engineer of Record shall report in writing within 24 hours of the event the details of the event and the procedure for correction. In addition, the Engineer of Record shall include proposed procedures to eliminate similar events in the future.

1.8 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with applicable Law.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.9 PRECONSTRUCTION PHOTOGRAPHS

A. Before commencement of work on the site, take digital photographs of the surrounding properties from different vantage points. Coordinate vantage point locations with the City's Authorized Representative.

B. Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as cracking or other damage caused by the building demolition operations.

C. Photographs shall:

1. Provide factual presentation.

2. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

B. Digital File:

3. File Format: Joint Photographic Experts Group (JPEG), unless otherwise directed by Architect.

4. Minimum Resolution: 12 mega pixels.

5. Provide digital date/time imprint on each picture.

6. Digital images shall be exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Deliver on USB flash drive or other digital means to City before work onsite begins.

E. Prints are not required.

1.10 FIELD CONDITIONS

A. Building to be demolished will be vacated and their use discontinued before start of Work.

B. Promptly repair damage caused by demolition operations to existing adjacent structures and facilities to remain at no cost to the City. If the existing finished surface of the paving of City streets is damaged, it shall be repaired to the satisfaction of the City. Corrective work shall be at the Non-Profit Entity's expense.

C. Hazardous Materials present in building and structures to be demolished shall be abated by the Non-Profit Entity under this Contract.

1.11 TRAFFIC

A. Conduct demolition operations and the removal of debris to ensure minimum interference with streets, walks, and adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

B. Existing pedestrian sidewalks shall be kept open at all times unless otherwise approved by the City.

1.12 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A. If street closure is required, comply with the provisions of Section 12, "Construction Area Traffic Control Devices," of the State of California Caltrans Standard Specifications.

B. If any component in the traffic control system is displaced or ceases to operate or function from any cause during the progress of the work, the NPE shall immediately repair said component to its original condition or replace said component and shall restore the component to its original location.

C. When a lane closure is made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators adjacent to the traveled way, shall be removed.

1.13 UTILITY SERVICES

A. Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.

B. Do not interrupt existing utilities serving adjacent properties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Conduct a pre-construction survey of existing conditions and correlate the survey with requirements indicated to determine extent of building demolition and existing conditions of adjacent construction to remain. Survey shall be documented with the pre-construction photographs as specified.

B. Inventory and record the condition of items to be removed and salvaged.

C. When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element. Promptly submit a written report to City.

D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

A. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.

1. Arrange to shut off indicated utilities with utility companies.

2. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

3.3 PROTECTION

A. Existing Facilities: Protect adjacent walkways, buildings, and other facilities during demolition operations.

B. Temporary Protection: Erect temporary protection, such as fences and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 01 50 00 "Temporary Facilities and Controls."

1. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

2. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.

3. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.

3.4 DEMOLITION

A. General: Demolish indicated existing buildings and structures completely. Use methods required to complete the Work within limitations of governing regulations.

B. Do not use cutting torches until work area is cleared of flammable materials. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

1. Maintain adequate ventilation when using cutting torches.

2. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

C. Perform surveys as the Work progresses to detect hazards that may result from building demolition activities.

D. Conduct building demolition and debris-removal operations to ensure minimum interference with City streets, walks, and other adjacent occupied and used facilities.

E. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as flooding, and pollution.

F. Below-Grade Construction: Demolish foundation walls and other below-grade construction as required.

G. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

3.5 EXPLOSIVE DEMOLITION

A. Explosives: Use of explosives is not permitted.

3.6 SALVAGED ITEMS

A. Where required by this Agreement and when so directed to be salvaged and/or reused, remove item to be salvaged in the most careful manner possible to avoid damage; and, if damaged, such items shall be restored to conditions satisfactory to the City.

B. Materials to be removed and not reused or salvaged shall become the property of the Non-Profit Entity, who shall be responsible for their timely removal from the Project Site and their legal disposal.

C. Removed and Salvaged Items: Comply with the following:

1. Clean salvaged items of dirt and demolition debris.

2. Pack or crate items after cleaning. Identify contents of containers.

3. Store items in a secure area until delivery to City.

4. Transport items to City as instructed.

5. Protect items from damage during transport and storage.

D. Coordinate re-installation of salvaged items into new work with Project Schedule to assure installation in the Project.

3.7 SITE RESTORATION

A. Rough grade below-grade areas ready for further excavation or new construction.

B. Completely fill voids resulting from building demolition operations that will not be required by new construction with satisfactory soil materials according to backfill requirements and recommendations of the Geotechnical Engineer.

3.8 REPAIRS

A. Promptly repair damage to adjacent construction caused by building demolition operations.

B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.

C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.9 RECYCLING DEMOLISHED MATERIALS

A. General: Separate recyclable demolished materials from other demolished materials to the maximum extent possible. Separate recyclable materials by type.

B. Provide containers or other storage method for controlling recyclable materials until they are removed from Project site.

C. Transport recyclable materials off the Project Site and legally dispose of them as specified in Section 01 74 50 (Material Reduction and Recovery Plan).

3.10 DISPOSAL OF DEMOLISHED MATERIALS

A. Except for items or materials indicated to be recycled, salvaged, or otherwise indicated to remain City's property, remove demolished materials from Project site and legally dispose of them as specified in Section 01 74 50 (Material Reduction and Recovery Plan).

B. Do not allow demolished materials to accumulate on-site.

C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

D. Do not burn demolished materials.

3.11 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION

SECTION 02 80 13 - HAZARDOUS BUILDING MATERIALS – REMEDIATION

PART 1 - GENERAL

1.1 SUMMARY

A. Many of the materials and items of equipment used to construct the improvements and facilities at the Project Site contain materials known to the State of California to be either carcinogenic or reproductive toxins. Such hazards include but are not limited to asbestos-containing materials (that are not NOA), lead based paints, lead-containing materials and demolition associated with Hazardous Materials.

B. This Section includes hazardous and toxic materials precautions, general requirements, and handling procedures as required to the work and existing conditions of the project. This Section includes requirements and procedures to be performed by Non-Profit Entity for the handling, removal, abatement, remediation, transportation and disposal of hazardous building materials.

C. Hazardous Materials removal shall be conducted as per the construction phasing and staging described as specified in the Contract Documents.

D. Non-Profit Entity shall perform all Hazardous Materials remediation work under the Contract Documents as described herein and in Section 01 35 44 Hazardous Building Materials – Scope of Work and Section 7.7 of the Agreement.

1.2 RELATED DOCUMENTS AND SECTIONS

A. Section 01 35 44 Hazardous Building Materials - Scope of Work

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. E84: “Standard Test Method for Surface Burning Characteristics of Building Materials.”

2. E849: “Practice for Safety and Health Requirements Relating to Occupational Exposure to Asbestos.”

3. E119: “Standard Method for Fire Tests of Building Construction and Materials”

B. American National Standards Institute (ANSI):

1. Z41.1-1967: “Men’s Safety-Toe Footwear.”

2. Z86.1: “Commodity Specification for Air.”

3. Z87.1-2020: “American National Standard for Occupational and Educational Personal Eye and Face Protection Devices.”

4. Z89.1: “Requirements for Industrial Head Protection.”

5. Z9.2-2018: “Fundamentals Governing the Design and Operation of Local Exhaust Ventilation (LEV) Systems”

6. Z88.2-1992: “American National Standard for Respiratory Protection.”

7. Z88.6: “Respiratory Protection - Respirator Use Physical Qualifications for Personnel.”

C. National Fire Protection Association (NFPA):

1. Standard 701: “Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.”

2. Standard 10: “Standard for Portable Fire Extinguishers.”

3. Standard 70: “National Electric Code.”

D. California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA):

1. Title 8 California Code of Regulations (8 CCR) Section 5144 - Respiratory Protection.

2. Title 8 California Code of Regulations (8 CCR) Section 1532.1 - Lead in Construction Standard.

3. Title 8 California Code of Regulations (8 CCR), Article 4, Section 1529 - Asbestos.

4. Title 8 California Code of Regulations (8 CCR) Sections 3203 and 1509 - Injury and Illness Prevention Program.

5. Title 8 California Code of Regulations (8 CCR), Article 110, Section 5208 – Asbestos, Appendix F.

6. Title 8 California Code of Regulations (8 CCR), Article 2.5, Section 341.6 for employer registration when disturbing more than 100 sq. ft. of ACCM.

7. Title 8 California Code of Regulations (8 CCR), Section 1537: Welding, Cutting, and Heating of Coated Materials.

E. California Department of Public Health Title 17 California Code of Regulations (17 CCR) Sections 35001-36100 for Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards.

F. U.S. Department of Housing and Urban Development (HUD): Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing,” referred to as the “HUD Guidelines.”

1.4 DEFINITIONS

A. Activity Class/Category - Lead: Lead hazard designations assigned to work activities that involve lead-containing materials. Activities, which fall into Classes 1 through 3, including as examples the operations defined below, are required to assume the following personal airborne exposure levels, unless otherwise demonstrated.

Lead Hazard Trigger Activities	Work Activity
Trigger Task, Activity 1 Exposure Less than 500 micrograms/m3	Surface clean-up of lead-containing dust or debris less than 15,000 microgram/square feet Spray painting with lead-based paints Manual demolition of structures (e.g. drywall, plaster, etc.) Manual sanding, grinding, needle gunning, chiseling, hammering, wire brushing, milling or scraping of lead-based coatings Heat gun removal of surface coating power tool Power tool cleaning with dust collection system
Trigger Task, Activity 2 Exposure 500 micrograms/m3 or greater but less than 2500 micrograms/m3	Using lead mortar Lead burning Rivet busting Power tool cleaning without dust collection systems Clean-up of dry abrasive Abrasive blasting enclosure movement and removal
Trigger Task, Activity 3 Exposure 2,500 micrograms /m3 or greater	Abrasive blasting of coated surfaces Welding on coated surfaces Torching or cutting of coated surfaces Torch burning of coated surfaces

B. Asbestos Work Class: Activities for removing asbestos materials by categories as follows:

Asbestos Activity Class/Category	Work Activity
Work Class I	Activity involving removal of Thermal System Insulation (TSI) and surfacing Asbestos-Containing Materials (ACM) or friable Presumed – Asbestos Containing Materials (PACM).
Work Class II	Activity involving removal of ACM which is not TSI or surfacing material, including, but not limited to, wallboard, floor tiles and sheeting, roofing and siding shingles, naturally occurring asbestos (soil, rock, etc.) and construction mastics. Note also that Class II materials that cannot be removed intact, such as soil, require usage of respiratory protection at all times, regardless of personal monitoring data showing compliance to PEL and EL.
Work Class III	Repair and maintenance operations where TSI or surfacing is likely to be disturbed, which fits within one standard glove bag or waste bag.
Work Class IV	Maintenance and custodial activities during which employees contact but do not disturb PACM or ACM and activities to clean up dust, waste bag and debris resulting from Work Class I, II, and III activities.
Unclassified	Any activities dealing with materials containing detectable but <1.0 % asbestos.

C. Certified Lead Worker: includes those who do lead-related Construction Work activities on the Project Site under the directions of a Certified Lead Supervisor, including:

1. Removal, disposal or abatement of loose and peeling lead-based paints as defined by CDPH, including scraping, demolition or other Cal/OSHA Activity 1 through 3 work as defined above.

2. Removal or repair of lead plumbing.

3. Repainting or general construction on surfaces painted with lead-based paints.

a. Removal, enclosing or covering of lead-contaminated soils.

4. Exemption: renovations, remodeling, painting, operations and maintenance work or other activities listed above that are considered to be interim controls, or lasting less than 20 years, may be completed by workers satisfying Cal/OSHA's asbestos awareness training requirements only.

D. Certified Lead Supervisor: includes those who supervise daily work activities on a lead-related construction site, as well as supervision of repainting or general construction performed on surfaces with lead-based paints where abatement is designed to permanently reduce or eliminate lead hazards for public (non-industrial) buildings or to last more than 20 years. The Certified Lead Supervisor shall oversee the Certified Lead Workers, enforce safe work practices, and schedule and coordinate work site activities with the building occupants and other contractors and consultants.

E. Containment: as defined by the California Department of Public Health includes any system, process or barrier used to contain lead hazards in a work area, including plastic sheeting, wet scraping, and other lead-safe work practices as described in the HUD Guidelines, Chapter 8.

F. Remediation: abatement, removal, control or containment of hazardous or toxic material(s).

1.5 SUBMITTALS

A. Non-Profit Entity shall submit copies of any notice of safety and environmental violations received from the regulatory agencies that they may have received in the last 20 years in the USA.

B. Non-Profit Entity shall submit copies all the minimum qualification licensing requirements required under Section 01 35 44 Hazardous Building Materials - Scope of Work.

C. Non-Profit Entity shall submit proof of its five (5) years of Hazardous Materials abatement and/or removal experience asked for in Section 01 35 44 Hazardous Building Materials - Scope of Work.

D. Non-Profit Entity shall submit proof of its environmental training requirements asked for in Section 01 35 44 Hazardous Building Materials - Scope of Work.

E. BAAQMD-issued Approval Letter for Asbestos Demolition. "[Job Number]". For all demolition of buildings and structures, regardless of whether asbestos is present or not, Non-Profit Entity shall submit a copy of the BAAQMD-issued Approval Letter for Asbestos for Demolition, "*[Job Number]*" to the SAR group within the City Public Works Department prior to the start of demolition. To obtain this letter, Non-Profit Entity shall submit an Asbestos Demolition Notification to the BAAQMD through their web-based Online Asbestos Notification System (http://learn.baaqmd.gov/course/view.php?id=4#section-5) at least ten (10) business days prior to the start of any demolition.

F. As per Section 01 35 44 Hazardous Building Materials - Scope of Work, Non-Profit Entity shall submit a Hazardous Materials Management Plan (HMMP) with the following documentation listed below. The HMMP shall be submitted no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier and before commencement of demolition activities. **No hazardous materials work may start without the HMMP reviewed and approved by the SAR group within the City Public Works Department.**

G. The Hazardous Materials Management Plan (HMMP) is Non-Profit Entity's comprehensive plan for the management of Hazardous Materials encountered during the Work for the Project. The HMMP shall include the following Plans and information:

1. An asbestos abatement work plan.

2. A lead hazard/removal control plan.

3. A waste management plan (WMP).

4. Information about Non-Profit Entity's designated Project safety representative (PSR) as per Section 01 35 44 Building Related Hazardous Materials - Scope of Work, and Section 01 35 45 Health and Safety Criteria. Include his/her training certification, qualifications; his/her name, phone number; fax number, and pager number.

5. Management spill procedures in the event of asbestos or any hazardous materials release or any event that may require modification or abridgment of site control and decontamination procedures.

6. Intended methods of compliance for hazardous materials handling work, including description of engineering controls, personal protective equipment as well as compliance monitoring as applicable.

7. Schedule and sequence of work for all hazardous materials work.

8. Worksite layout diagram: Detailing location of each regulated area and construction of each containment identifying location of each decontamination units, fire extinguishers and emergency exits.

9. A copy of the Site-Specific Hazard Communication Plan in accordance with federal and California OSHA requirements.

10. Copies of required licenses, certifications and notifications to handle and control hazardous materials.

H. As part of Non-Profit Entity's HMMP, Non-Profit Entity shall submit a Waste Management Plan (WMP). The WMP is Non-Profit Entity's comprehensive plan for waste management of hazardous and non-hazardous waste generated during the remediation work of this project. The WMP shall include the following:

1. Information about the designated persons who will implement the plan. Include his/her name, phone number, and his/her roles and responsibilities for implementing the plan.

2. Waste segregation procedures for waste generated from demolition debris, abatement, and stabilization.

3. Proposed location of locked dumpster, if applicable.

4. Sampling plan and protocol for waste characterization in accordance with 22 CCR §66262, et. seq.

5. Handling, segregation, and waste load-out procedures for hazardous and non-hazardous waste, including TSCA-regulated waste. Include diagrams showing regulated areas for waste segregation, load-out stations, paths of travel for off-hauls of waste, and engineering controls to prevent air pollution and potential exposures to airborne contaminants.

6. Waste hauler identification, information, 24-hour contact number, and copy of licenses.

7. Asbestos and lead waste disposal sites identification. Include name, address, 24-hour contact number.

I. For Asbestos Containing Construction Materials (ACCM), or Asbestos Containing Material (ACM), as applicable by regulation, and as part of the Hazardous Materials Management Plan (HMMP) Non-Profit Entity shall submit the following, but not limited to:

1. Asbestos Pre-job Submittals:

a. Proof of current asbestos contractor's license issued by the California Non-Profit Entitys State License Board.

b. Proof of current California Department of Industrial Relations (CA-DOSH or Cal/OSHA) asbestos contractor's registration certification.

c. Valid and current Bay Area Air Quality Management District (BAAQMD) notification for the Project (as applicable).

d. Cal/OSHA 24-hour notice per 8 CCR 1529.

e. Worker documentation, including:

1) Current AHERA training certification - supervisor/competent person

2) Current AHERA training certifications for workers.

3) Respiratory fit test records within past 12 months.

4) Annual medical examination approvals for respirator use.

f. Written asbestos abatement work plan and schedule with the sequence of work.

g. Material Safety Data Sheets.

h. Emergency phone numbers, pagers and email addresses.

i. Aerosol Challenge Testing Certification

1) Aerosol challenge testing using dioctylphthalate (DOP, also known as Bis(2-ethylhexyl) phthalate) or an approved alternative is required for all equipment fitted with High Efficiency Particulate Air (HEPA) filters including negative pressure units, air machines, fan units and vacuum cleaners.

2) Prior to use, testing must be performed on site:

(a) Whenever equipment enters the site.

(b) After replacement of HEPA filters or any other significant repairs or alterations.

3) Equipment which fails testing shall be marked and promptly removed from the site.

4) Equipment which has passed testing shall be marked with a unique identifier number and the date of the testing. The identifier number shall be reflected on all testing documentation.

5) Recognized alternatives to DOP include, but are not limited to 4 centistoke (4 cSt) viscosity grade polyalphaolefin (POA) fluids such as Emery 3004 POA and selected mineral oils. Testing equipment modification and/or recalibration may be needed to use DOP alternatives.

j. Rotameter calibration data calibrated by a primary standard within past 6 months.

k. Periodic Submittals: Submitted upon request during abatement:

1) Non-Profit Entity's personal air monitoring results (daily)

2) Updated workers documentation (as needed)

3) Daily boundary access logs

4) Daily negative pressure manometer records (print outs), as applicable

5) Copies of updated schedules and notices to the regulatory agencies (as needed)

l. Project closeout Submittals: Within 5 calendar days upon request by the SAR group within the City Public Works Department or within 5 calendar days after completion of the abatement or hazard control work, Non-Profit Entity shall submit the following:

1) Copies of updated schedules and notices to regulatory agencies, as needed.

2) Receipt and weight tickets from landfill operator or incinerator, as applicable.

3) Copies of completed uniform waste manifests.

4) Certification of completion.

J. For lead-related Work, and as part of the Hazardous Materials Management Plan (HMMP) Non-Profit Entity shall submit the following, but not limited to:

1. Pre-job Submittals: Non-Profit Entity shall submit documents pertaining, but not limited, to the following:

a. San Francisco Department of Building Inspections (DBI) notification and posting requirements as deemed required for exterior paint remediation.

b. Cal/OSHA notifications as per 8 CCR 1532.1

2. Workers documentation:

a. Current CDPH lead contractor/supervisor training certificates.

b. Current lead awareness training certificates - workers or CDPH Certified Lead Workers Certificate, as appropriate.

c. Respiratory fit test records within past 6 months.

d. Annual medical examination approvals.

e. Blood lead tests within past 90 days.

3. Lead hazard/removal control plan pursuant to 8 CCR 1532.1: Procedures for minimizing and controlling the migration of lead from disturbance of lead-containing materials including a written lead hazard or lead removal work plan and schedule with the sequence of work:

4. Project close-out Submittals: Within 5 calendar days upon request by the SAR group within the City Public Works Department, or within 5 calendar days after completion of the abatement or hazard control work, Non-Profit Entity shall submit the following:

a. Updated worker documentation, as needed.

b. Non-Profit Entity periodic personal air monitoring results.

c. Receipt and weight tickets from landfill operator or recycler, as applicable.

d. Waste profiling data (TCLP, WET, and other analytical data)

K. For Copper Chromate Arsenate (CCA) treated wood related Work:

1. As part of the Hazardous Materials Management Plan (HMMP), Non-Profit Entity shall submit the following, but not limited to:

a. Identification of EPA-approved hazardous waste landfill disposal facility, or an EPA-approved solid waste disposal facility.

b. Temporary storage plan.

2. Workers documentation:

a. Certification of the workers and supervisor’s forty (40) hour HAZWOPER training in compliance with 40 CFR 1910.120.

b. Medical examination approvals for respirator use within the past twelve (12) months, or in compliance with 8 CCR 5144.

c. Respiratory fit test records within the past twelve (12) months minimum, or in compliance with 8 CCR 5144.

3. Within 5 calendar days upon request by the SAR group within the City Public Works Department or within 5 calendar days after completion of the abatement or hazard control work, Non-Profit Entity shall submit the completed manifest or evidence of shipment date, recycler, and quantities shipped.

L. For fluorescent light tube related Work

1. As part of the Hazardous Materials Management Plan (HMMP), Non-Profit Entity shall submit the following, but not limited to:

a. Identification of EPA-approved recycler.

b. Temporary storage plan.

2. Project close-out Submittals: Within 5 calendar days upon request by the SAR group within the City Public Works Department, or within 5 calendar days after completion of the abatement or hazard control work, Non-Profit Entity shall submit the completed manifest or evidence of shipment date, recycler, and quantities shipped.

1.6 QUALITY CONTROL

A. Meetings

1. Pre-abatement meeting: Prior to any removal of Hazardous Materials and upon approval of the HMMP, Non-Profit Entity shall arrange and attend a pre-construction meeting with the SAR group within the City Public Works Department, the City's Authorized Representative, and others whose work may be affected. The meeting agenda shall include the following considerations:

   a. Weekly Meetings: At the option of the SAR group within the City Public Works Department, abatement work extending over one week in length may require attendance of Non-Profit Entity at a weekly progress meeting. The purpose of this meeting is to review abatement and project scheduling, coordination with other trades, security and site-specific requirements.

   b. Start-up Hazardous Materials handler's meeting: Prior to the beginning of on-site work, all Hazardous Materials handlers shall attend a pre-start-up safety meeting that addresses hazardous materials issues specific for the project.

   c. Review of the specifications and plans in detail related to the abatement and hazards control work. All conflicts and ambiguities, if any, shall be discussed.

   d. Review in detail the Project conditions, schedule, construction sequencing, site protection, protection of historic building materials abatement application requirements, and quality of completed work.

   e. Review in detail the means of protecting adjoining areas; protection of Non-Profit Entity's employees and contractors, City's employees and contractors, and completed work during the abatement and lead removal activities.

   f. Pre-job submittals requirements.

   g. Site security requirements.

B. Field Quality Control Sampling

1. During all asbestos-related work, perimeter sample(s) shall be collected by the City's Certified Industrial Hygienist or its environmental consultant (DOSH Certified Asbestos Consultant). These sample(s) shall be analyzed by Phase Contrast Microscopy (PCM). Sample results that are in excess of the background level or 0.010 fibers per cubic centimeter (f/cc) Project Action Level may be forwarded for analysis by Transmission Electron Microscopy (TEM) with a 12-hour turnaround specified. Handling, shipping, and analysis charges (including the Environmental Consultants time and expenses) shall be paid for by Non-Profit Entity. Any sample results in excess of 70 asbestos structures per square millimeter of filter area (corrected for a 1,200 - 1,800 liter sample volume as appropriate, or in excess of 0.018 str/cc, normalized to a 1,500-liter air sample) shall require cleaning, inspection, and resampling of the affected area at Non-Profit Entity's expense.

2. During all lead-related work, such as demolition, torching and welding activities, etc., as applicable, visual inspections, perimeter air sample and/or lead wipe sample results shall be collected by the City's Certified Industrial Hygienist or its environmental consultant (DOSH Certified Asbestos Consultant). These samples shall be analyzed by flame atomic absorption.

C. Clearance and Re-occupancy Sampling

1. Asbestos Clearance Sampling

a. Clearance samples will be collected by the SAR group within the City Public Works Department or their designee at the completion of the asbestos abatement activity. Clearance will be either by visual inspection and/or phase contrast microscopy (PCM) and/or aggressive air sampling - transmission electron microscopy (TEM). The City reserves the right to conduct AHERA clearance criteria and limit the number of samples for clearances to be less than AHERA protocol when the City deems appropriate.

b. Clearance air samples using aggressive air sampling techniques shall be collected for all abatement zones, unless otherwise designated in the Contract Documents.

c. Phase Contrast Microscopy (PCM) Clearances: Areas cleared by PCM shall show an airborne concentration of total fibers for each sample at or below 0.010 fibers per cubic centimeter (f/cc) using the NIOSH 7400A counting rules. Any sample result exceeding 0.010 fibers/cc shall require re-cleaning of the work area and retesting. The City as Regulator will determine the minimum number of samples, based on the quantity and types of materials removed configuration, and sequencing of the work areas, and similar considerations.

d. When transmission electron microscopy (TEM) clearances are conducted, as designated by the Contract Documents, analysis shall be conducted by using the method described in 40 CFR Part 763, Appendix A, Subpart E (AHERA), with an analysis turn-around time of 24 hours, unless otherwise designated by the City as Regulator. Z-test requirements under the AHERA regulations shall **NOT** apply to the Project. The TEM clearance standard is 0.018 s/cc for **ALL** samples (equivalent to 70 s/mm^2 for a 1500-liter sample volume). The City as Regulator may opt to adjust the sample volume to prevent possible overloading of the samples from interference dusts (e.g., demolition, welding particulates), if so, the analytical sensitivity shall be at or below 0.005 s/cc, maintained by having adequate number of grids analyzed by the laboratory.

2. Lead Wipe Sampling

a. All areas with regular occupancy affected by disturbance, demolition or scraping of painted surfaces shall be cleared by wipe sampling. Lead wipe sampling will be collected immediately prior to area occupancy.

b. The SAR group within the City Public Works Department or its designee will collect clearance wipe samples after approving the work area cleanliness based on visual inspection. The wipe samples will be collected from building surfaces, NOT from plastic sheeting or other temporary barriers. Non-Profit Entity shall re-clean the area if surface lead concentrations exceed any of the following HUD definitions for lead contaminated dust:

1) <10 micrograms/ft^2 for interior floors

2) <10 micrograms/ft^2 for interior horizontal surfaces other than floors

3) <100 micrograms/ft^2 for exterior floor and horizontal surfaces, window sills and troughs

c. All reoccupancy/clearances will be based on floors and any interior horizontal surfaces. Routine use of other levels is not expected and are for use only as determined by the City as Regulator on a case by case basis. Areas that do not meet the HUD lead contaminated dust criteria shall continue to be cleaned by Non-Profit Entity at its expense until the specified criteria is achieved. Only after passing re-occupancy clearance, shall Non-Profit Entity teardown the containment and demobilize.

d. Where lead remediation occurs concurrently with asbestos remediation activities, the area may be cleared (in addition to the wipe samples) by aggressive air sampling, where airborne lead concentrations following the final visual inspection shall not exceed the EPA's NAAQS standard of 1.5 micrograms/m^3 as analyzed by NIOSH method 7082 (flame atomic absorption) or 7105 (graphite furnace atomic absorption) or ICP/MS.

D. Final Clearance Criteria

1. The City will pay the cost of the final round of visual inspections, aggressive air sampling, and PCM and/or TEM analyses that will meet the asbestos abatement specification. All rounds of visual inspections, aggressive air sampling, and PCM and/or TEM analyses that fail to meet the contract criteria shall be borne by Non-Profit Entity. For the purpose of this paragraph, visual inspection includes the area isolation inspection, pre-encapsulation inspection, and final area clean-up inspection.

2. If wipe sampling for re-occupancy clearance fails the HUD lead contaminated dust criteria, Non-Profit Entity shall be responsible for additional clean-up costs until clearance is achieved.

3. Non-Profit Entity shall pay for all environmental consultant costs for delays in completion of work beyond the Project Schedule. Such charges shall include consultant's observations and inspections, daily air monitoring, equipment, transportation and analysis charges. Such costs are estimated at $1,200 per day, exclusive of any costs associated with final clearance air testing.

E. Inspections

1. Work Area Inspections: Inspections are required at the completions of the following job phases:

a. Pre-cleaning inspection(s)

b. Work area preparation inspection (Pre and post 24-hour hold times)

c. Pre-encapsulation inspection

d. Final visual inspection

e. Waste handling inspection

2. Non-Profit Entity shall provide in writing a signed or initialed request for inspection to the SAR group within the City Public Works Department. Request all inspections at least 24 hours in advance of the time required; inspections shall be performed between the hours of 8:00 a.m. and 3:00 p.m., Monday through Friday, unless otherwise noted. Written requests may be waived, and verbal requests accepted for short-duration projects at the

discretion of the SAR group within the City Public Works Department. Adequate lighting is to be provided by Non-Profit Entity.

3. Precede all inspection requests by an evaluation by the Construction Manager, who shall verify that criteria for acceptability have been met prior to requesting an inspection.

4. Pre-cleaning Inspection:

    a. The SAR group within the City Public Works Department or its designee shall inspect all surfaces requiring pre-cleaning to verify that dust and debris have been removed and cleaned up to an acceptable condition. Multiple inspections may be required to cover all systems and the required phasing of activities.

    b. No object shall be covered until inspected or approved by the SAR group within the City Public Works Department or its designee as stated in the requirements herein. When covered before such inspections are made and approved, Non-Profit Entity shall uncover such work for inspection, subsequently restore it, and replace work of others damaged thereby, all at Non-Profit Entity's expense.

5. Work Area Preparation Inspection:

    a. After preparing the work area and decontamination enclosure system(s) for Activity Class I and II work areas, as applicable, the SAR group within the City Public Works Department or its designee shall conduct an initial inspection to ensure completeness of work and type containment according to the specifications.

    b. No hazardous material removal work shall commence without the approval of the SAR group within the City Public Works Department following a work area preparation inspection.

6. Pre-Encapsulation Inspection:

    a. After detail cleaning has been completed and the Non-Profit Entity has checked and approved the area as adequately cleaned, the SAR group within the City Public Works Department or its designee shall inspect all surfaces requiring encapsulation to verify that hazardous materials have been removed and the area and abated surfaces leaned to an acceptable condition.

    b. During such inspections, Non-Profit Entity shall provide adequate lighting, ladders, scaffolding, workers, etc., so as not to curtail the systematic inspection of all surfaces by the SAR group within the City Public Works Department or its designee. Areas requiring rework shall be tagged in a manner to allow continuation of the inspection in a timely manner. The SAR group within the City Public Works Department or its designee shall not be expected to remain within an area requiring extensive re-cleaning.

    c. The pre-encapsulation inspection may be staged to allow inspection of detailed surfaces concurrent with the removal activities in adjoining areas ready for inspection, allowing a buffer zone to protect against cross-contaminating inspected surfaces. For lead removal: a final overall inspection shall be required to reconfirm the final wipe down of all horizontal surfaces, which may have been subjected to contamination from airborne releases during the staged inspection process. The staging of inspections shall not preclude Non-Profit Entity from conducting internal quality control inspections prior to requesting review by the SAR group within the City Public Works Department or its designee.

7. Final Visual Inspection: After the encapsulation process is complete, the encapsulant is dry, and all debris bags, tools, supplies, and equipment have been removed from the work area, as applicable, the SAR group within the City Public Works Department or its designee shall inspect the work area to verify the cleanliness of the area, including but not limited to public and attic areas. The work area must be free of visible debris, dust, water, or loose and peeling lead-based paints as a minimum.

8. Waste Handling Inspection: The SAR group within the City Public Works Department or its designee shall inspect waste as it leaves the regulated area. Non-Profit Entity shall insure that all waste is packaged, labeled, and handled as required. The SAR group within the City Public Works Department or its designee may inspect the waste dumpsters at any time, including prior to transportation. Non-Profit Entity shall coordinate temporary relocation to a transport staging area with the SAR group within the City Public Works Department or its designee prior to removal.

1.7 ADDITIONAL CONTRACT REQUIREMENTS

A. Specific mandatory asbestos abatement requirements for *occupied and unoccupied spaces* at San Francisco sites are more stringent than current regulations. This summary of additional requirements is not to be read as a stand-alone document.

1. If work procedures are going to change, the SAR group within the City Public Works Department and the City's Authorized Representative must be notified, in writing, and given the opportunity to notify surrounding employees as the new procedures may impact surrounding areas (e.g., noise, vibration).

2. Localized occupants must be notified in writing of limited access to the work areas prior to the start of project.

3. Non-Profit Entity is responsible for coordinating with the SAR group within the City Public Works Department as to where the exhaust air is to be directed and to ensure the exhausted air will not be recirculated within the facility prior to the initial setup of the work area.

4. A rigid and robust secondary perimeter with "Caution Construction" sign or equivalent. The secondary perimeter shall be a full height, 1-hour fire-rated, dust and sound proof construction barricade as per the architectural drawings for the Project.

5. The regulatory signage is to be posted between the secondary construction perimeter and the regulated work area.

6. All equipment shall be inspected by the SAR group within the City Public Works Department or its designee prior to being brought into the hospital. All equipment and supplies shall be free of dust and debris.

7. On-site aerosol challenge testing of negative air machines and HEPA vacuums prior to start of work and every 90 days for longer projects, when machines are relocated between floors. The aerosol challenge testing shall be conducted in the work area.

8. Sufficient quantities and types of dehumidifier units shall be installed and operated within the construction area to reduce humidity levels to 40% relative humidity.

9. Method of sealing critical barriers including the capping of ducts, supply registers, etc. shall be dust tight and capable of withstanding air flow and pressure generated by the ventilation system. Tape and/or polyethylene sheeting alone shall not be used to seal the supply registers.

10. Negative pressure differential of -0.04 inches of water with manometer reading records is required for all areas at all times during abatement and general construction activities. Downgrading of negative pressure during construction may be considered on a case by case basis.

11. The negative pressure enclosure shall maintain the minimum Negative pressure differential of -0.04 inches of water for at least 24 hours prior to the start of abatement unless otherwise approved by the SAR group within the City Public Works Department. Following 24-hours, the SAR group within the City Public Works Department and its environmental consultant will review the containments to determine if the integrity of the containments has been maintained. The Containment will have passed when the following 3 conditions are met:

    a. Containment integrity has been maintained for at least 24-hours; and

    b. Negative pressure has been maintained at least at -0.04” w.g. for 24-hours; and

    c. The SAR group within the City Public Works Department and the environmental consultant are satisfied that the containment has been constructed sufficiently so as to last for at least two months without modifications, repairs or improvements.

12. In negative pressure enclosures, a calculated air exchange rate of no less than 10 air exchanges per hour for the entire area in which the renovation activities are being performed.

13. Installation of clear, transparent view ports made of plastic or equivalent, in the polyethylene wall so that activities can be visually monitored from outside the containment. This window shall measure approximately 1' wide by 2' high. It shall remain transparent throughout the duration of the abatement process. It is recognized that viewing ports are not possible in all situations.

14. Adhesive tack (“sticky”) mats with multiple layers shall be installed at all construction barricade entrances to prevent tracking of construction dust outside of the construction area.

15. The removal of debris shall be in tightly covered containers, and only at times and routes approved by the SAR group within the City Public Works Department and facility personnel.

16. All HEPA equipment, tools, decontamination chambers, etc. shall be clean upon entering the Project Site. Typically, the equipment and materials are inspected at a loading dock prior to bringing them into the facility. NOTE: The use of decontamination showers is limited to Class I work only unless otherwise specified by the abatement work plan.

17. Non-Profit Entity is responsible for ensuring that water is properly shut off at lavatory/faucet fixtures at the beginning and ending of each shift.

PART 2 - PRODUCTS

2.1 GENERAL

A. Prohibited Materials

1. Mastic or paint removers shall not result in the generation of hazardous waste.

2. Cleaning agents, equipment, and methods employed shall not in any way damage the substrate or adjoining surfaces and finishes which are to remain. Cleaning solvents shall be non-injurious to the surfaces upon which they are applied. The methods used shall cause no pitting, erosion or damages to the surfaces.

3. Paint removal chemicals may not attach or leave deposits on the substrate material.

4. The following tools and equipment are specifically prohibited unless accepted in writing by the SAR group within the City Public Works Department:

   a. High- or low-pressure water-blasting equipment for hosing of ductwork or work areas.

   b. Gasoline, propane, diesel or other fuel powered equipment inside the building.

5. Equipment that creates excessive noise or vibration that would affect safety of the building or its occupants or generate complaints from the occupants. Equipment shall not exceed an A-weighted sound level of 85 dB as measured at 50 ft. from the radiating source.

6. Asbestos-containing materials shall not be disturbed by cutting, sawing, grinding, pulverizing, crumbling, breaking, or otherwise rendered friable or airborne unless these activities are conducted under the requirements of all applicable regulations and guidelines by trained certified workers.

B. Minimum Requirements:

1. Deliver all materials in original packages, containers, or bundles bearing the names of the manufacturers and the brand names and details for proper storage and usage. Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination. Store materials so as not to interfere with Project Site operations.

2. Do not use damaged or deteriorating materials. Remove damaged materials from the premises. Dispose of contaminated materials in accordance with applicable regulations.

2.2 MATERIALS AND EQUIPMENT

A. Non-Profit Entity shall ensure that following materials and equipment shall be available on the Project Site:

B. Protective Devices: Temporary wash stations or showers, disposable clothing, respirators, gloves, hard hats, and other required items. Respirators shall protect against appropriate dusts, fumes and mists as approved by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH) under provisions of 30 CFR Part 11.

C. Waste Receptacles: Conform to federal and State regulations, with 6-mil minimum thickness waste bags.

D. Polyethylene Sheeting and Dust Barriers

1. Polyethylene sheeting shall be flame-retardant and approved and listed by the State Fire Marshal in accordance with Section 13121 and/or 13144.1 of the California Health and Safety Code.

2. Thickness and Size: 6-mil thick minimum, unless otherwise specified, sized to minimize the frequency of joints.

3. Flammability: Comply with NFPA Standard 701 with a flame spread rating of no greater than 5 and a smoke development rating of no more than 70 when tested in accordance with ASTM accordance with ASTM E84 procedures.

E. Protective Devices to conform to the following:

1. Polyethylene drop cloths and dust barriers, temporary wash stations or showers, disposable clothing, respirators, gloves, hard hats, and other required items.

2. Respirators shall protect against asbestos and other appropriate dusts, fumes and mists as approved by the National Institute for Occupational Safety and Health (NIOSH) under provisions of 30 CRF Part 11.

F. Sealants:

1. Sealants shall, at a minimum, conform to the following:

a. Shall be Fire resistant

b. Shall be compatible with concrete, metals, wood, cable jacketing and other materials capable of preventing fire, smoke, water and toxic fumes from penetrating through sealants.

c. Shall be asbestos free and shall have a flame spread, smoke and fuel contribution of zero.

d. Shall be ASTM- and UL-rated for 3 hours for standard method of fire test for fire stop systems.

2. Spray adhesives shall not contain methylene chloride or methyl chloroform (1,1,1-trichloroethane) compounds.

3. Adhesive tape shall comply, at a minimum, with the following.

a. Must be 2" or wider, shall be capable of sealing joints of adjacent sheet of polyethylene and attaching polyethylene sheet to finished or unfinished surfaces of similar materials.

b. Tape shall be capable of adhering under dry and wet conditions, including use of amended water. Complete taping to critical or sensitive surfaces utilizing preservation sealing tape, such as:

1) 3M Scotch Brand No. 4811 Preservation Tape; or

2) 3M Scotch Brands No. 472 Plastic Film Tape.

G. Surfactants and Encapsulants:

1. Wetting agents or surfactants shall be effective and compatible with the ACM being wetted.

2. Bridging or penetrating type encapsulants shall have the following characteristics:

a. Water based. Do not utilize an organic solvent in which the solid parts of the encapsulant are suspended.

b. Non-flammable with no methylene chloride.

c. U.L. listed encapsulants, in full-scale ASTM E119 fire test, compatible with W.R. Grace “Retroguard, RG-1” fireproofing with “Spatterkote” Type SKII” bonding treatment for structural and decking widths exceeding 24 inches.

d. Compatible with replacement materials, especially mastics, fireproofing, and adhesives.

H. Mastic and Paint Removers to conform to the following:

1. Non-flammable solvent or gel, with a flash point above 140 degrees Fahrenheit.

2. Of low odor type.

3. Solvent waste shall not result in the generation of hazardous waste as described under 22 CCR, Division 4.

4. Removers shall NOT contain methylene chloride, halogenated hydrocarbons, or any of the following glycol ethers:

Common Name	**Abbreviation**	**CAS #**	**Chemical Name**
Ethylene glycol methyl ether	EGME	109-86-4	2 - methoxyethanol
Ethylene glycol methyl ether acetate	EGMEA	110-49-6	2- methoxyethyl acetate
Ethylene glycol ethyl ether	EGEEA	111-15-9	2- ethoxyethanol
Ethylene glycol dimethyl ether	EGDME	110-71-4	1,2-dimethoxyethane
Ethylene glycol diethyl ether	EGDEE	629-14-1	1,2 - diethoxyethane
Diethylene glycol	DEG	111-46-6	2,2 - dihydroxyethyl ether
Diethylene glycol methyl ether	DEGME	111-77-3	2-(2-methoxyethoxy) ethanol
Diethylene glycol ethyl ether	DEGEE	111-90-0	2- (2-ethoxyethoxy) ethanol
Diethylene glycol dimethyl ether	DEGDME	111-90-6	Bis-(2-methoxyethoxy) ether
Triethylene glycol dimethyl ether	TEGDME	112-49-2	2,5,8,11-tetraoxadodecane
Dipropylene glycol	DPG	110-98-5	2,2 - dihydroxyisopropyl

I. Vacuums and Negative Pressure Units (NPUs) used for cleanup of materials and detailing shall be HEPA-filtered, clean, without significant dents, marring, or otherwise unprofessional appearance. Coordinate with the Environmental Consultant for inspection and approval prior to bringing this equipment into a building. Conduct DOP testing on-site in the presence of the City as Regulator’s environmental consultant for all HEPA-filtered units.

J. Air filtration devices shall, at a minimum, conform to the following:

1. Filtration devices shall be high efficiency particulate absolute (HEPA) filtration systems bearing a UL 586 label indicating its ability to perform under specified conditions. Filters shall be marked with the name of the manufacturer, serial number, airflow rate efficiency and resistance, and the direction of the test airflow. Provide units with two stages of pre-filtering, as follows:

a. A low efficiency type first stage pre-filter for particle sizes 100 micrometers and larger.

b. A medium efficiency type second stage pre-filter effective for particle sizes down to 5 micrometers.

c. Pre-filters installed either on or in the intake grid to the exhaust unit and held in place with special housings or clamps.

2. HEPA-filtration exhaust units are to include:

a. An elapsed time meter showing the total accumulated hours of operation.

b. An electrical interlock preventing operation of the unit without a HEPA filter.

c. An automatic shutdown system to stop the fan in the event of a rupture in the HEPA filter or a blocked air discharge.

d. Warning lights to indicate normal operation (green), moderately high pressure drop across the filters, such as due to filter overloading (yellow), and too high of a pressure drop due to an overloaded or ruptured HEPA filter or obstructed discharge (red).

e. An audible alarm if the unit shuts down due to operation of the safety systems.

f. Electrical components approved by the National Electrical Manufacturers Association (NEMA) and the Underwriter's Laboratories (UL). Each unit shall be equipped with overload protection sized for the equipment. Properly ground the motor, fan, fan housing, and cabinet.

g. A cabinet constructed of steel or aluminum capable of withstanding damage from rough handling and transportation, with a width under 30-inches to fit through a standard-size doorway, mounted on casters or wheels.

h. Several spare HEPA-filtered exhaust units on-site to be used as needed if active units fail.

K. Waste Containers:

1. Waste receptacles to conform to federal and State regulations, with 6-mil minimum thickness or glove bags or waste bags.

2. Sealable drums shall be of 30- or 55-gallon capacity constructed of fiber or metal with tightly fitting lids for hazardous waste disposal. Label the drums and bags in accordance with U.S. EPA and local air quality management district requirements, including the Generator I. D. number or location identification, and manifest number. Provide air and watertight drums. If previously used, the drums shall be food grade and shall be approved by the City as Regulator prior to their storage or use on-site. Sealable polyethylene bags shall be of 6-mil minimum thickness for asbestos disposal. Size bags to fit within drums specified above.

L. Cleaning Agents:

1. Cleaning agents, equipment, and methods employed shall not in any way damage the substrate or adjoining surfaces and finishes. Cleaning solvents shall be non-injurious to the surfaces upon which they are applied. The methods used shall cause no pitting, erosion or damages to the surfaces.

2. Do not use chemicals that may attach or leave deposits on the substrate material. Modify the process or processes to suit the finish, hardness, and condition of the surface to be cleaned.

PART 3 - EXECUTION

Non-Profit Entity shall:

3.1 EXAMINATION

A. Review Hazardous Materials reports and information and ensure the information is available to all contractors and trades working on the Project Site.

B. Promptly notify the SAR group within the City Public Works Department of differing conditions or for suspected materials not identified or listed under Section 01 35 43.

C. Notify the SAR group within the City Public Works Department, in writing, a minimum of 48 hours in advance of any planned disturbances to any Hazardous Materials or prior to performing any Hazardous Materials abatement.

D. Disturbance of asbestos or lead and other Hazardous Materials, including demolition, surface preparation, or removal of paint, can contaminate air, soil, and water surrounding the Project Site. It is the responsibility of Non-Profit Entity to evaluate and determine the most appropriate level of containment necessary to prevent the uncontrolled release of Hazardous Materials from the work site.

E. As per Cal/OSHA regulatory requirements, establish the required site controls, class of containment, of ventilation, and of air monitoring as appropriate for the removal means and methods as selected to perform the specific removal work. These systems shall be sufficient to control exposures to workers, the public, and to protect the surrounding environment.

3.2 PREPARATION

A. Protective Procedures and Workers Protection

1. Protect Visitors and Other Site Personnel: Cordon off the Hazardous Materials removal and hazard control area(s) with appropriate signs, and provide temporary tunneling or scaffolding, as applicable.

2. Provide site security to assure that no member of the public or any unqualified or untrained person is able to gain access to any Hazardous Materials work area at any time while maintaining open access and egress routes at all times.

3. Provide worker training, respiratory protection, and medical examinations to meet applicable regulations.

4. Provide temporary lighting and power to work areas, including installation of ground fault interrupters as required. Ensure that all electrical power is terminated in the work area, and ensure, among others, outlets and lights are disconnected and cannot be re-energized during the course of the Work. Fully ground all equipment within the work zone and decontamination assemblies.

5. Construct enclosure system(s) for worker and equipment decontamination.

6. Establish negative pressure in work area(s) as required under 8 CCR Section 1529. Follow and follow hazard control procedures as outlined under Cal/OSHA regulations CCR 1532.1 and CDPH regulations 17 CCR Sections 35001 through 36100.

7. Provide workers with sufficient sets of protective full-body clothing to be worn in the designated work area and whenever a potential exposure to lead, asbestos, and hazards exists. Such clothing shall include but not be limited to full-body coveralls, headgear, eye protection, and gloves. Disposable-type protective clothing, headgear, and footwear may be provided.

8. Respiratory Protection: Comply with Cal/OSHA Regulations included in 8 CCR Sections 1529, 1532.1 and ANSI Standard Z88.2, "Practices for Respiratory Protection: Workers shall wear appropriate respiratory protection during lead, asbestos and any other hazards work, unless negative exposure assessment testing verifies that employee exposures are below the PEL or Action levels.

B. Site Protective Controls:

1. Locate temporary scaffolding and dust barriers, as required, and proceed with the construction or demolition, allowing for continued operation of any adjacent occupied areas, as applicable.

2. Erect temporary protective covers over pedestrian walkways and at points of passage for persons or vehicles, which are to remain operational during the work.

3. Where life safety systems shall be made non-operational, coordinate shutoff with SAR group within the City Public Works Department. Protect all wiring associated with the system.

4. Air Filtration Device

a. Differential air pressure systems for each work area to be in accordance with Appendix J of the EPA's "Guidance for Controlling Asbestos-Containing Materials in Buildings," EPA 560/5-85-024.

b. Minimum work area differential air pressure of -0.025 inches w.g. at all times when required, including during the removal, gross clean-up, waste transfer, and encapsulation activities. Account for fluctuations of the negative pressure by aiming for a higher-pressure differential at the project outset to ensure that the chances of the pressure differential dipping below -0.025 inches w.g. are minimal.

c. Provide sufficient number of units for each work area to maintain differential air pressure in the work area at -0.025 inches w.g. between the work area and adjacent non-work areas at all times, allowing for stack and thermal effects. Locate unit(s) so that the primary make-up air enters the zone through the decontamination facilities and traverses the work area as much as possible, unless otherwise approved by the SAR group within the City Public Works Department.

d. Provide on-site certification of all HEPA-filtered negative pressure units to document adequate filtration efficiency for all units exhausting internally within the building or as otherwise required by the SAR group within the City Public Works Department. Systems shall be certified by a third-party to conduct onsite dioctylphthalate (DOP) or Portacount challenge testing, signed by an independent tester or Non-Profit Entity's Site Safety Representative. DOP testing shall verify an in-situ efficiency of 99.97% or greater. Portacount testing shall verify an in-situ efficiency of 99.3% or better.

5. Exhaust Air:

    a. Establish negative pressurization within the work area exhausting air ducted through temporary panels located in window frames or exterior doorways. Such panels must be designed to prevent rainwater from entering the work area.

    b. Unless otherwise directed by the SAR group within the City Public Works Department, Non-Profit Entity shall replace any windows removed at the completion of Hazardous Materials removal work. Vent exhaust air to the exterior of the building at locations approved by the SAR group within the City Public Works Department unless otherwise noted or directed.

    c. Do not locate exhaust outlets near or adjacent to other building intake vents or louvers or at the entrances to the building. Do not exhaust air into the building interior spaces or within 50 feet of the building's supply air intakes, unless otherwise noted or directed by the SAR group within the City Public Works Department.

6. Decontamination Enclosure Systems

    a. Construct a decontamination enclosure system (as a minimum) in accordance with OSHA Regulation 29 CFR Part 1926.1101 and Cal/OSHA Regulation 8 CCR Sections 1529 and 1532.1. The systems shall be contiguous to the work area consisting of three totally enclosed chambers and airlocks. Mobile isolation enclosures shall be permitted in areas where space limitations shall not permit such construction.

    b. For Work Class I, II and III work areas, provide, at a minimum, a two (2)-stage decontamination assembly, including an equipment and contiguous clean room with bucket wash-up facilities. A shower will be required if the work is greater than 25SF.

    c. Post all emergency phone numbers, notifications, emergency exiting diagrams and procedures, as required.

    d. Post danger signs at the entrance to all decontamination units, per OSHA Regulation 29 CFR Part 1926, 1529 and 1532.1.

    e. The SAR group within the City Public Works Department must approve location of decontamination enclosure systems prior to commencing Construction Work.

    f. Mobile isolation enclosure(s) shall be constructed of rigid frames (either 2 x 4-inch wood construction or PVC tubing, as appropriate) and polyethylene sheeting or rigid plexiglas sheets. Do not tape, nail, puncture or disturb asbestos containing building materials to attach, or secure the mini enclosure system.

    g. No eating, drinking, smoking, or chewing gum or tobacco is permitted in or near the asbestos or lead work areas or decontamination enclosure systems except in areas designated by the SAR group within the City Public Works Department. Smoking will not be permitted in the clean room and near storage or usage areas of flammable materials, such as spray adhesive and mastic removers.

3.3 ASBESTOS ABATEMENT PREPARATION

A. Notifications:

1. Notify the SAR group within the City Public Works Department, in writing, a minimum of 48 hours in advance of any asbestos-abatement work.

2. Notify, in writing, the BAAQMD at least 10 working days prior to commencement of any asbestos project equal or greater than 100 linear feet (LF) or more than 100 square feet (SF) or 35 cubic feet or more of regulated asbestos-containing materials. Obtain a job number.

3. Notify Cal/OSHA a minimum of 24 hours in advance of any disturbances of any amount of friable or non-friable asbestos-containing materials or prior to performing asbestos-related work.

4. Advise Project Safety Representative of suspect conditions. Do not remove or disturb suspect materials until tested and approved by the SAR group within the City Public Works Department or its designee.

B. Prohibited Activities:

1. Asbestos-containing materials shall not be disturbed by cutting, sawing, grinding, pulverizing, crumbling, breaking, or otherwise rendered friable or airborne unless these activities are conducted under the requirements of all applicable regulations and guidelines.

2. Only a registered Asbestos Abatement Non-Profit Entity per Cal/OSHA regulation 8 CCR 1529 shall complete Work exceeding 100-sq. ft. or 100 linear feet or 35 cubic feet of asbestos-containing construction materials.

C. Demolition of non-ACM obstructing known intact ACM:

1. Remove non-contaminated and non-asbestos materials for access using standard dust control procedures as required for painted assemblies and construction housekeeping controls.

2. Minimize disturbances to substrates concealing friable or damaged asbestos-containing materials, such as laid-in ceiling tiles concealing asbestos-containing fireproofing, demolition of non-ACM partitions which may destabilize sprayed-on asbestos-containing acoustical finishes, etc. Qualified workers shall conduct work impacting asbestos-containing materials.

D. Unexpected exposure to known or suspect Asbestos-Containing Material (ACM):

1. Where ACMs are discovered intact, such as intact pipe lagging, proceed to cordon off the affected area and immediately post it with a “caution” sign to prevent unintentional disturbances. Immediately alert Non-Profit Entity’s site safety representative of the conditions for proper removal and disposal procedures.

2. Where ACMs are damaged or suspect asbestos contaminated conditions are encountered, discontinue work in the immediate suspected area, shutdown the area’s HVAC system, if not already disengaged, and alert Non-Profit Entity’s site safety representative of the conditions for proper removal and disposal procedures.

E. Unexpected release of asbestos into the environment:

1. Cordon off the immediate area (10 to 20 ft. radius minimum), and shutdown the area’s HVAC system (if applicable).

2. Notify the City’s Authorized Representative and the SAR group within the City Public Works Department immediately.

3. Notify Non-Profit Entity's site safety representative for proper removal and disposal using wet methods and HEPA-filtered vacuums. Clean-up work shall be completed under the directions of a Asbestos Competent Person with 16-hour minimum EPA operations and maintenance asbestos training and by workers with 2-hours asbestos awareness training minimum unless exposures exceed the permissible exposure limit (PEL) of 0.1 fibers/cc.

4. Decontaminate or dispose of friable waste in double 6-mil thick goose necked labeled waste bags for manifesting and disposal.

F. Work area set up and protection:

1. Non-Profit Entity shall carry out the following:

a. Pre-Cleaning

1) Work Areas: Pre-clean surfaces in workspace. If the space has any contamination in the opinion of the SAR group within the City Public Works Department, then Non-Profit Entity shall install air locks and negative pressure system prior to pre-cleaning.

2) Fixed Objects: Pre-clean all fixed objects within the proposed work areas using HEPA filtered vacuum equipment and/or wet cleaning methods, as appropriate. Enclose with a layer of 6-mil polyethylene sheeting sealed with tape unless specified otherwise.

3) Ductwork: Pre-clean and wrap all active and inactive ductwork within the zone with a minimum of two layers of 6-mil polyethylene sheeting sealed with tape, unless otherwise directed by the SAR group within the City Public Works Department.

4) Removable Objects: Pre-clean removable objects within the proposed work areas exposed to friable ACM or debris using HEPA filtered vacuum equipment and/or wet cleaning methods, as appropriate. Properly remove and dispose of objects from work area before abatement operations commence.

5) Work area surfaces or items scheduled to remain covered with polyethylene sheeting during the clearance air sampling shall be inspected and approved by the SAR group within the City Public Works Department upon completion of pre-cleaning before critical barriers are erected or any other removal procedures are initiated.

6) Non-Profit Entity shall inspect all of its equipment and shower pans that it brings to the work site before and after its use and ensure that such equipment is not contaminated.

b. Critical Barriers

1) Seal off all openings, including but not limited to corridors, doorways, ducts, grilles, diffusers, pipe chases, drains, grates, and any other penetrations of the work areas, with 6-mil polyethylene sheeting sealed with tape. Use caulking where necessary to ensure a complete seal.

2) Except for emergency exits, doorways, which will not be used for passage during work, must be sealed by first applying tape over the gap between the closed door and the doorframe and the gap between the bottom of the door and the floor. Then apply 6-mil polyethylene sheeting over the door and seal it with tape to the wall and to the floor.

3) Seal windows by applying two layers of 6-mil polyethylene sheeting sealed independently to the wall with tape.

4) HVAC registers and returns shall be sealed with metal or rigid plastic covered by polyethylene sheeting. Polyethylene sheeting is not an acceptable alternative.

5) At any time during the abatement activities after barriers have been erected, if visible suspect dust is observed outside of the work area or if the barriers are damaged, work in the abatement area shall immediately stop. Repair the barriers, and clean-up debris/residue using appropriate HEPA vacuuming and wet cleaning procedures before work recommences.

c. Regulated Work Area Isolation and Controls

1) Establish a pressure differential of -0.025 inches w.g. with manometer reading records. Submit manometer readings daily or upon request.

2) Conduct DOP testing of the HEPA-filtered negative pressure units and vacuum cleaners on site.

3) Install a transparent view port per work area for inspections.

4) Notify the SAR group within the City Public Works Department for changes in work practices immediately to allow the City the opportunity to notify and prepare the surrounding properties if the new procedures may impact the surrounding areas (due to noise, vibration, etc.).

5) Use a calibrated manometer to monitor the negative pressure, and provide the manometer print out to the SAR group within the City Public Works Department or designee at the end of the work shift.

d. Full Isolation Work Areas - Sequence of Major Events

1) This subsection outlines the sequence of events only. Modify the sequence as required if the work area is considered contaminated or if demolishing ACM or non-asbestos materials is required for access to the required abatement materials. Refer to other applicable sections of this specification for detailed requirements.

2) Cordon off the area with appropriate signs.

3) Deactivate HVAC system, unless otherwise noted or directed.

4) Protect or remove carpeting, if present, as appropriate. Contaminated carpeting will require decontamination by steam cleaning or disposal, as directed by the SAR group within the City Public Works Department.

5) Pre-clean work area, as necessary.

6) Establish temporary power and lighting.

7) Construct critical barriers.

8) Construct decontamination enclosure systems. All work areas shall contain a worker decontamination enclosure system and an equipment decontamination enclosure system, unless otherwise noted or directed.

9) Erect 6-mil polyethylene sheeting on the walls, windows, ceiling and floor, as applicable.

10) Establish negative pressure within the work area.

11) Request and facilitate a second work area preparation inspection from the SAR group within the City Public Works Department or designee following demolition and preparation of the final critical barriers, where applicable.

12) Remove ACM employing wet cleaning methods, HEPA vacuuming and proper work practices.

13) Clean-up work area.

14) Dispose of asbestos-containing waste.

15) Work area final clean up.

3.4 HAZARDOUS MATERIALS REMOVAL PROCEDURES FOR CONTROLLED RENOVATION

A. Non-Profit Entity shall have in place controlled renovation procedures for installation of anchors and minor disturbances to Asbestos- Containing Material under one hundred square feet (<100 SF) or under one hundred linear feet (<100 LF), except thermal system insulation (TSI) or surfacing materials (including but not limited to vinyl floor tiles, carpet or tile mastics, transite board, sheetrock wallboard, ceiling tile mastics) and carry out or comply with the following:

1. Minor work affecting non-friable materials, such as drilling molly anchors into wallboard or seismically bracing equipment through asbestos-containing may be completed by trained construction workers or maintenance personnel following procedures under the General Industry Asbestos Standards, 8 CCR 5208. All operations and maintenance procedures and personnel training records must be pre-approved by the SAR group within the City Public Works Department or its designee or prior to commencement of activities.

2. Demarcate the area of exposure to minimize traffic within the area and to protect persons outside the area from airborne asbestos exposures, even if a negative exposure assessment has been produced.

3. Assemble equipment and supplies, including but not limited to a Hudson sprayer, an HEPA- filtered vacuum, polyethylene drop cloths and wetted sponges.

4. Install a drop cloth below the area to be disturbed on the floor and other surfaces and shoot or drill the anchor through the wetted sponge or cut the material through a wetted sponge, as applicable. HEPA vacuum the area following all work and place the sponge and debris into a sealed plastic disposal bag. Do not use these procedures on asbestos-containing thermal system insulation (TSI) or asbestos-containing surfacing materials, such as asbestos fireproofing or acoustical sprayed-on plaster finishes.

5. Immediately clean up all debris dislodged from coring or drilling through asbestos and trace asbestos substrates using a wetted sponge and HEPA vacuum. HEPA vacuum the area immediately following completion of the controlled renovation procedures. Dispose of the debris as non-friable asbestos waste. Contamination of the site by use of improper procedures will require extensive clean-up and clearance air sampling by the City as Regulator, at Non-Profit Entity’s expense.

6. The following materials are classified as not “surfacing” materials for controlled renovation purposes involving anchoring or minor disturbances:

    a. Vinyl Floor Tiles: Cordon off the room or area and remove the floor tiles before drilling through the concrete or wooden substrate. Vinyl floor tiles can be removed using heat or manual means such as hand scrappers. Where tiles cannot be removed in advance of coring, saturate the tile with shave cream and core through the tiles, frequently wiping up all chips and debris and disposing as Category 1 non-friable waste. Wet wipe with a clean sponge and HEPA vacuums the area upon completion of work. Seal off the area below the core capture any debris that can fall into the ceiling plenum or crawl space below.

    b. Carpet Mastics: Cordon off the room or area and cutout the carpeting and mastics using a carpet knife, saturating the carpet with water to prevent airborne asbestos fiber releases. Remove excess mastics using a mastic remover with a flash point greater than 140 deg. F., as approved by the SAR group within the City Public Works Department or designee. Dispose of the carpet segment and mastics as Category 1 non-friable waste. Wet wipe and HEPA vacuum the area following completion of the controlled renovation procedures.

    c. Vinyl Floor Tile Mastics: Cordon off the room or area and remove the mastics using a mastic remover with a flash point greater than one hundred and forty degrees Fahrenheit (>140 deg. F.), as approved by City. Dispose of the mastic and rags as Category 1 non-friable waste. Wet wipe and HEPA vacuum the area following completion of the controlled renovation procedures.

    d. Transite Board and Mastics: Cordon off the room or area and remove the board intact, where feasible, following installation of drop cloths below. If removal is not feasible, drill through the board using the shaving cream methods described.

    e. Sheetrock Wall or Ceiling Board: Shoot or drill anchors through a wetted sponge, where feasible, or use a Hilti-brand rotohammer drill equipped with a spring-loaded local exhaust hood connected to a HEPA-filtered vacuum cleaner. Cordon off the room or area and cut holes for receptacles or other devices using drop cloths on the ground and wet methods. Remove the sheetrock avoiding the joint compounds, where feasible. Continually wet the controlled renovation area during the process and wet wipe and HEPA vacuum the area following completion of the controlled renovation procedures.

    f. Thin-Layered Asbestos-Containing Paints: Shoot or drill anchors through a wetted sponge or use a Hilti-brand rotohammer drill equipped with a spring-loaded local exhaust hood connected to a HEPA-filtered vacuum cleaner, where feasible. Cordon off the room or area and core using drop cloths on the ground and wet methods. Continually wet the controlled renovation area during the process and wet wipe and HEPA vacuum the area following completion of the controlled renovation procedures. Dispose of the paints as Category 1 or 2 non-friable wastes as determined by the substrate’s composition.

    g. Linoleum Backing: Cordon off the room and work area and cutout the linoleum, using a carpet knife prior to coring. Wet the backing using water and shave cream and remove the asbestos containing backing intact. Dispose of debris as friable asbestos waste. Wet wipe and HEPA vacuum the area of the controlled renovations for final clearance. Do not allow linoleum on cores to fall into the ceiling plenum or the space below, as applicable.

7. Other Non-Friable Materials: Complete controlled renovation procedures in compliance with Cal/OSHA’s Work Class 2 procedures per 8 CCR 1529.

8. A Cal/OSHA & DOSH registered, and licensed Asbestos Abatement Non-Profit Entity shall complete work equal or greater than one hundred square feet (100 SF) or one hundred linear feet (100 LF) or asbestos-containing construction materials or other work as required in the Abatement Work Plan.

B. Non-Profit Entity shall implement controlled procedures for installation of anchors or coring through friable asbestos materials, including but not limited to sprayed-on or troweled-on acoustical plasters, structural fireproofing, and linoleum backing (as applicable), and carry out the following:

1. Avoid contact with friable ACM where practical. Anchor to non-ACM materials where feasible.

2. Install drop cloths on the ground and use a glovebag or mini-containment constructed of 6-mil polyethylene sheeting to contain work affecting friable materials.

3. Wet the ACM with water and remove limited material as required for installations. Immediately clean up all debris and seal the waste in a double 6-mil disposal bag for disposal as asbestos waste.

C. When conducting core drilling through ACM, Non-Profit Entity shall:

1. Assemble equipment and supplies, including but not limited to Hudson sprayers, nylon brushes, HEPA vacuums, labeled polyethylene disposal bags, approved encapsulant, duct tape, 5-in-1 tools, plastic buckets, etc.

2. Coordinate exact location of the core hole, marking the location on the underside of the structure. Spray material to be disturbed with an approved penetrating encapsulant, restricted to the area of removal and disturbance only.

3. Remove asbestos-containing materials following set-up of the isolation area under full isolation procedures or glove bag removal procedures.

4. Cordon off the area with appropriate signs and deactivate the HVAC systems, as appropriate.

5. Isolate the area with a mini-containment and decontamination assembly, and pre-clean and wrap fixed items and surfaces, as appropriate. Establish a mini-containment and decontamination assembly in the floor below.

6. Establish negative pressure within the mini containment.

7. Begin coring from the floor above, protecting against water seepage or spraying near active electrical or telephone equipment. After coring is complete, double bag, and encapsulate the raw edges of the cored hole with an approved penetrating encapsulant.

8. Clean up any residual debris and insert a non-conductive sleeve into the hole, extending 6-inches minimum below the asbestos coating. Properly secure the sleeve and seal the openings around the circumference with a fire-rated caulking or seal.

9. Dispose of ACM waste and proceed with the final work area clean up and inspection.

D. With respect to hanger installation, Non-Profit Entity shall:

1. Assemble equipment and supplies, including but not limited to Hudson sprayers, nylon brushes, HEPA vacuums, labeled polyethylene disposal bags, approved encapsulant, duct tape, 5-in-1 tools, plastic buckets, etc.

2. Lightly wet the material with an approved penetrating encapsulant, using a 5-gallon bucket lined with a plastic bag as a catch basket during the installation of the hanger or anchor. Cut an appropriately sized hole in the bottom of the bucket for the anchor grip to reach through. Place the plastic bag in the bucket, and with one hand, push the bottom of the anchor through the hole in the bucket sandwiching the plastic bag between the anchor and the gun grip. Locate the anchor location and push the bucket tight against the material before setting the anchor. Carefully lower the bucket and the gun and dispose of the waste gathered in the bag and any loosened materials.

3. As an alternative to the above procedures, lightly wet the material with an approved encapsulant, placing a 3" x 5" sponge dampened with encapsulant against the material. Shoot the anchor or drill through the sponge so that any localized loosened material is trapped between the sponge and substrate. Leave the sponge in place, removing any signs of loose or dislodged debris. Re-spray any loosened materials with an approved encapsulant, restricted to the area of the disturbance.

4. Clean-up the immediate area using wet methods and a HEPA vacuum. Dispose of friable plasters, linoleum backing, fire proofing and thermal system insulation as friable asbestos waste.

E. With respect to coring on Fireproofing and Textured Acoustical Plasters, Non-Profit Entity shall:

1. Cordon off the area and set-up negative pressurization of the controlled renovation activity using glovebag or mini-containment methods. Do not drill or core openly through friable ACM. A Certified Asbestos Worker only under Cal/OSHA Work Class I or III procedures, as applicable shall complete such work. Wet the materials throughout the controlled renovations. Do not allow ACM on cores to fall into the ceiling plenum or Crawl Space below. Following the controlled renovation activities, clean up the mini containment using wet methods and a HEPA vacuum. Gooseneck and dispose of the glovebags, where applicable, within a double waste bag.

F. Non-Profit Entity shall work within crawl spaces, confined spaces, or plenums with *Thermal System Insulation (TSI): Control Renovation Procedures for Friable Asbestos Materials*, and carry out the following:

1. Core or anchor through adjoining non-ACM materials, where feasible. If not feasible, cordon off the area and set-up negative pressurization of the controlled renovation activity using glovebag or mini-containment methods per 8 CCR 1529.

2. Do not drill or core openly through friable ACM. Wet the materials throughout the controlled renovations. Do not allow ACM on cores to fall into the ceiling plenum or Crawl Space below. Following the controlled renovation activities, clean-up the mini containment using wet methods and a HEPA vacuum. Gooseneck and dispose of the glovebags and waste in double goose necked bags as friable asbestos waste.

3. Adhere to all the requirements for confined spaces as follows:

a. It is the responsibility of Non-Profit Entity to provide all equipment and assistance to make the confined space safe for entry by Non-Profit Entity's employees, the City, the City as Regulator, and its representatives in accordance with the California Code of Regulations, Title 8, General Industry Safety Orders entitled "Confined Spaces."

b. If any activities associated with confined space entry become necessary, Non-Profit Entity shall be required to consult the City as Regulator for guidance and prepare an appropriate Permit-Required Confined Space Entry Plan.

G. For asbestos-containing sheetrock and joint compound, Non-Profit Entity shall:

1. Lightly spray the material to be disturbed by spot removal, drilling, etc., with an approved penetrating encapsulant, restricted to the area of disturbance only. For anchoring into ACM, locate the attachment location and push an encapsulant-wetted sponge between the stud or joist and the existing sheetrock before setting the anchor. Carefully shoot the anchor or drill through the stud or joist and sponge, and HEPA-vacuum any loosened materials or debris. For small-scale removals, penetrate the material with care, using a sharp utility knife or other appropriate tools, removing the encapsulated section and catching it directly into a lined bucket or waste disposal bag, where feasible, disposing of as asbestos waste. HEPA-vacuum the edges of the remaining materials and re-encapsulate the friable edges of the remaining sheetrock with penetrating encapsulant. Do not disturb materials beyond the limited scope of work.

3.5 HAZARDOUS MATERIALS REMOVAL PROCEDURES

A. When removing asbestos-Containing Thermal System Insulation (TSI), Non-Profit Entity shall carry out or comply with the following:

1. Set-up a full isolation containment or a secondary containment for all glovebags abatement areas. Install critical barriers with two layers of polyethylene sheeting on the floors and on the walls. Set up a full decontamination system with shower for quantities greater than 25 LF, unless otherwise directed by the Contract Documents.

2. Areas with evidence of damaged TSI will require HEPA-vacuuming of the access to this debris as well as vacuuming of all piping, ductwork and substrate materials within a minimum five (5) ft. radius of all such contamination.

3. Use wet methods and HEPA vacuums. The removal of TSI shall be sufficient to accommodate access by applicable trades within the plenum, wall cavity or crawl space zone for routing of conduit, cables, etc. Coordinate with abatement of other applicable materials.

4. Pipe Insulation Removal: Cut and separate metal bands, where appropriate. Locate the section length (typically three feet) and cut around the circumference at the end of the attached section. Twist the section to ensure it is free from the pipe. Using an airless sprayer, saturate the exterior of the covering with amended water to limit fiber release. Locate the upper and lower half seam and position one seam at the top of the pipe. After positioning, cut along the length of the section and carefully open each half. Immediately saturate the exposed inner surface thoroughly with amended water. Lower both halves into 6-mil polyethylene disposal bags. Do <u>not</u> place or allow insulation to fall on the floor. Pick-up debris falling on the floor and place it in disposal bags immediately. Clean to remove all debris remaining on the pipe.

5. Fitting Insulation: Saturate fitting insulation with amended water. Remove fitting insulation using scraping tools, hand pressure and brushing. Immediately saturate the exposed inner surface thoroughly with amended water. Do not remove insulation by striking or chipping the surfaces. Deposit fitting insulation directly into 6-mil disposal bags. Do not place or allow insulation to fall on the floor. Pick-up debris falling on the floor and place it in disposal bags immediately. Clean to remove all debris left on fitting.

6. At a minimum, use glove bags procedures as per Cal/OSHA Regulation 8 CCR 1529, Asbestos Activity Class/Category - Work Class I when removing Asbestos – Containing Thermal System Insulation (TSI) materials.

7. Disassemble the pipping tanks and mechanical component on the boiler and heater systems using wet methods. Saturate the packing ACM before removing the bricks, pipes, and other ACM insulated (tar paint, canvas, materials.

8. Dispose of TSI and packing material in double goose necked-labeled bags or double wrap cutout sections in 6-mil polyethylene sheeting and properly labeled as friable asbestos waste.

B. With respect to removing friable insulation, fireproofing, acoustical plaster, and, laid-in, splined or glued-on acoustical tiles, Non-Profit Entity shall comply with the following:

1. Mist asbestos material with amended water, using airless sprayers, or spray equipment recommended by the surfactant manufacturer and capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it to the substrate without causing excessive dripping or de-lamination of the material. Mist the asbestos material continuously during work process to maintain damp conditions and to minimize asbestos fiber dispersion, but without accumulating water on the floor.

2. Remove ACM and overspray from all surfaces, including but not limited to structural steel, deck, walls, ceilings, ducts, insulation, piping, conduit, junction boxes, cables, etc.

3. Remove the saturated ACM in small sections. As it is removed, place the material in sealable plastic bags. Do not allow materials to dry out prior to insertion into the bags. Do not permit materials to accumulate on floors and other surfaces in the work area.

4. After removing the ACM, wet and wipe all surfaces, or use a soft-bristle brush to remove all residual accumulated material. Clean all surfaces with special emphasis on the top edge of the Spray-Poly or polyethylene covers.

C. With respect to removing asbestos floor coverings, Non-Profit Entity shall comply with the following:

1. Mastic removal solvents, procedures, and equipment information submittals must be approved prior to floor coverings removal.

2. In flooring areas where a solvent-based mastic remover is to be applied, Non-Profit Entity shall use a low odor mastic remover. Non-Profit Entity shall submit the Safety Data Sheets (SDS) of the mastic remover it intends to use, for the review and approval of the SAR group within the City Public Works Department or designee. After the application of a solvent-based mastic remover, Non-Profit Entity shall rinse the flooring areas by wet-moping, applying “simple green cleaner” or equivalent, scrubbing floors, and finalize the clean up by re-moping with clean water. Non-Profit Entity shall provide adequate ventilation to exhaust out the odors from the solvent-based mastic remover. Non-Profit Entity shall ensure that no odors from the solvent-based mastic remover remain.

3. Vinyl floor tiles adhering to old non-ACM linoleum or tiles may require removal of the sub flooring intact to remove the overlying asbestos-containing mastic residues. For demolition projects, remove leveling compounds under VAT and non-VAT removal areas as asbestos containing unless otherwise noted.

4. Use an approved mastic removal solvent following the manufacturer's recommended procedures. Wipe residual material and dispose of waste and rags in a proper manner.

5. Where removing the mastic is feasible without the use of solvents, use water with liquid dishwashing detergent (1 ounce of detergent to 1 gallon of water), and scrub surfaces as required to remove residual material, scraping the wetted surface with a stiff-bladed wall or floor scraper. Wipe residual material and dispose of rags as ACM waste. Wet vacuum standing water with a HEPA vacuum.

6. Use of an approved portable shot abrasive "bead blaster" system that strips, cleans, and etches the floor, shall follow the manufacturer's recommended procedures. This method can dislodge sprayed-on fireproofing and/or sprayed-on acoustical plasters on the floor below due to excessive vibrations, where applicable. Therefore, adhesion and cohesion testing of these materials shall be conducted prior to the bead blaster's use. Usage of this system will require a variance from Cal/OSHA and the local Air Quality Management District as a "dry removal" method and approval by the SAR group within the City Public Works Department.

7. Use of a buffer for mastic removal will require wet buffing only. Using a buffer will render the mastic onto a friable state. Non-Profit Entity shall conduct mastic removal using a buffer following the BAAQMD Regulation 11, rule 2. Buffer brushes shall be disposed of after each use as asbestos waste. Thoroughly remove all mastic residues from the buffer before removal from the work area.

D. With respect to removing vinyl floor tiles and mastics, Non-Profit Entity shall comply with the following:

1. Remove the flooring and mastics as indicated on the Contract Drawings using full isolation procedures, satisfying the requirements of Cal/OSHA Regulation 8 CCR 1529, Work Class II.

2. Set-up critical barriers and splash guards and establish negative pressurization.

3. Remove the tiles using wet methods to minimize breakage and airborne fiber releases.

4. Remove the mastic using an approved mastic remover.

5. HEPA vacuum the contained area following abatement for clearance.

6. Provide a full decontamination system with shower for areas exceeding 25 SF.

7. Dispose of tiles and mastic as Category 1 wastes.

E. With respect to removing linoleum flooring and mastic, Non-Profit Entity shall comply with the following:

1. Remove the flooring and mastics as indicated on the Contract Drawings using full isolation procedures, satisfying the requirements of Cal/OSHA Regulation 8 CCR 1529, Work Class II and BAAQMD Regulation 11, Rule 2.

2. Set-up critical barriers and splash guards and establish negative pressurization.

3. Remove the linoleum backing using wet methods to minimize breakage and airborne fiber releases.

4. Remove the mastic using an approved mastic remover.

5. HEPA vacuum the contained area following abatement for clearance; minimize use of encapsulant on substrates to be retiled.

6. Provide a full decontamination system with shower for areas exceeding twenty-five square feet (>25 SF).

7. Dispose of linoleum backing and mastics as friable asbestos waste.

F. With respect to removing electrical/Wiring Insulation, Non-Profit Entity shall comply with the following:

1. Remove wiring by cutout of the conduit in manageable sections, where possible. Otherwise, pull the wire through the conduit with a properly sized sponge wetted with encapsulant tied to the distal end, misting the insulation continually and HEPA vacuuming any residual debris. Avoid unnecessary cutting or peeling.

2. Clean up the area and dispose of the asbestos-containing waste. Wire bundles may be wrapped in burlap or cardboard, prior to bagging, to protect against penetrating the disposal wrapping.

G. With respect to removing tar-coated electrical wrap, Non-Profit Entity shall comply with the following:

1. After confirming that the systems have been de-energized, including the proper deployment of log out/tag out procedure, remove materials using full isolation or mini-containment procedures, satisfying the requirements of Cal/OSHA 8 CCR 1529 Work Class 2 procedures. Use wet methods for dust controls. Dispose of materials as non-friable asbestos waste.

H. With respect to removing ACM paint of ceiling plasters, Non-Profit Entity shall comply with the following:

1. Remove materials using full isolation or mini-containment procedures, satisfying the requirements of Cal/OSHA 8 CCR 1529 Work Class 2 procedures. Use wet methods for dust controls. Dispose of materials as non-friable asbestos waste. Remove substrates as required to access materials and overspray.

2. Removal of larger ceiling segments, particularly demolition of elements that may impact paint finishes (see Demolition Plans), shall be completed under full isolation or mini-/mobile containment procedures by a licensed abatement contractor. The asbestos contractor using glovebag and mobile mini-containment methods or full isolation methods, depending on the quantities impacted, shall complete coring greater than two (2) inch diameter, which cannot be properly controlled using a wetted sponge.

3. If a mobile containment is used, clean-up and reseal the phone booth-type containment and airlock entry between uses.

I. With respect to removing window and door glazing compounds, Non-Profit Entity shall comply with the following:

1. Remove windows and doors following abatement of other interior finishes and materials and wrap in a double layer of polyethylene sheeting, where feasible.

2. Where complete removal and disposal of the frames is not feasible, scrape the glazing compound following installation of polyethylene drop cloths under each window or door.

3. Scrape residual compounds from wood or metal frames, as applicable. Double bag and dispose of materials as Category I non-friable waste unless otherwise directed by the SAR group within the City Public Works Department or designee.

J. With respect to removing exterior/perimeter windows and door caulking, Non-Profit Entity shall comply with the following:

1. Cordon off the work area, installing critical barriers at the windows, doors, and other penetrations, as applicable.

2. Remove ACM using wet methods per Cal/OSHA Regulation 8 CCR 1529, Work Class II.

3. Set-up drop cloths on the ground and nearby objects to contain falling materials on the ground or public access areas surrounding the work area.

4. HEPA vacuum the sills and frames following abatement.

5. Provide a full decontamination system with shower for areas exceeding 100 sf.

6. Remove residual caulking from perimeter stucco, wood, metal, window and doorframes and concrete finishes, as applicable. Double bag and dispose of materials as Category I non-friable waste.

K. With respect to removing roofing material, Non-Profit Entity shall comply with the following:

1. Seal any air intakes, operable windows, and skylights within 50 feet of the work area with 6-mil polyethylene sheeting secured in place over the opening. Weather conditions shall be dry and wind conditions less than 10 mph with dry. Establish a secured waste storage area where sealed bags of roofing material are stored during removal. Provide such areas for each different roof elevation or section. Line the storage areas with a layer of 6-mil polyethylene sheeting.

2. Employees and authorized visitors at the work site during on-going work shall wear approved respirators and full body disposable protective clothing as described in “Personnel Protection” and are required to fully shower out when exiting the abatement zone.

3. Set-up drop cloths on the ground under roofing removal area and abate the roofing materials using wet methods. Seal rooftop vents, windows, etc. with one layer of 6-mil polyethylene sheeting as a critical barrier. Bag or wrap waste in 2 layers of 6-mil polyethylene sheeting and lower to ground. Debris chutes must be sealed and negatively pressurized, if used.

4. Comply with the following Cal/OSHA requirements:

   a. Adequate wet ACM per 8 CCR 1529 Para. (g)(B)(2).

   b. Provide continuous misting of cutting machines per 8 CCR 1529 Para. (g)(B)(3).

   c. Use HEPA vacuums or dust collectors during power cutting per 8 CCR 1529 Para. (g)(B)(4).

   d. Do not throw ACM roofing off the roof per 8 CCR 1529 Para. (g)(B)(5).

5. For Disposal & Cleanup: HEPA vacuum the surrounding area following the abatement for final clearance. Dispose of all roofing debris as Category 1 non-friable asbestos waste.

6. Allow for a 20 ft. minimum buffer zone between the roof removal activities and other demolition or renovation work. Dampen the roof surface with a fine spray of amended water before proceeding with removal. Keep roofing material damp throughout the removal process.

7. Double bag roofing material in 6-mil labeled disposal bags and dispose of by methods described herein. Do not drop bags from the roof to the dumpster; transport bags without risk of their integrity utilizing the stairs or a lined waste chute. Where a lined waste chute is used, contain the opening to the dumpster with polyethylene sheeting and install a HEPA-filtration device to scrub the dumpster containment in the event of a bag rupture. Clean and seal the chutes overnight, as applicable.

8. HEPA vacuum and/or wet wipe the entire work site including adjacent roof area and removed areas following the roofing's abatement. The area may be sprayed with a light coat of encapsulant to lockdown all remaining asbestos fibers, except the skylights, as applicable.

9. Provide a full decontamination system with shower for areas exceeding one hundred square feet (100 SF).

10. Non-friable asbestos roofing material is considered non-hazardous and can be disposed of as non-hazardous asbestos waste. This can be transported and disposed of at a landfill-accepting Category I, non-friable ACM.

L. With respect to removing window glazing putty, Non-Profit Entity shall:

1. Set up the lead hazard control regulated areas. Ensure that drop cloths extend sufficiently, about ten (10) ft. minimum, in all directions.

2. Remove the windows intact to avoid disturbance to the window glazing putties. Burrito-wrap and dispose of windows as Category 1 non-friable waste. Where full removal intact is not feasible, close and seal windows and scrape putty utilizing drop cloths and wet methods. HEPA-vacuum the sills and surrounding area and use drop cloths, before final visual clearances.

M. Window and Door Glazing Compounds

1. Remove windows and doors following abatement of other interior finishes and materials and wrap in a double layer of polyethylene sheeting, where feasible.

2. Where complete removal and disposal of the frames is not feasible, scrape the glazing compound following installation of polyethylene drop cloths under each window or door.

3. Scrape residual compounds from wood or metal frames, as applicable. Double bag and dispose of materials as Category I non-friable waste unless otherwise directed by the SAR group within the City Public Works Department or designee.

N. With respect to removing fire rated doors, Non-Profit Entity shall:

1. Remove fire doors with 45-minute or greater fire rating intact, burrito-wrap in two (2) layers of six (6) mil fire-retardant polyethylene sheeting and dispose as friable asbestos waste.

O. With respect to removing lead – containing ceramic tiles: Non-Profit Entity shall:

1. Set up the lead hazard control regulated areas. Seal vents, windows, etc., with one layer of six (6) mil polyethylene sheeting as a critical barrier. Post signs.

2. Remove the ceramic tiles off from the substrate without bashing, cutting, grinding, or pulverizing the glaze, or include the ceramic tiles as part of the substrate demolition, if applicable. Bashing, cutting, grinding, or pulverizing glazed ceramic tiles is known to create significant airborne lead above the PEL.

3. Manually demolish ceramic wall tiles using drop cloths, wet methods, and HEPA vacuums for dust control in compliance with Cal/OSHA regulation 8 CCR 1532.1. Do not use power tools or airline tools to demolish ceramic wall tiles.

4. Avoid dry sweeping. Clean-up all work areas before leaving the site daily.

5. For tiles mounted to concrete, plaster or masonry substrates, isolate the room and establish negative pressurization of the work areas using HEPA-filtered negative pressure units and demolish the tiles using a pneumatic or electric chipper or jackhammer. Continuously mist the work area during chipping activities.

6. Dispose of debris as hazardous waste is waste characterization determines the waste to be hazardous. HEPA vacuum the fine debris and dust residues and dispose as hazardous waste.

P. With respect to removing lead sheeting, Non-Profit Entity shall:

1. Set up a negatively-pressurized containment for removal of the sheeting. Seal vents, windows, etc., with one layer of six (6) mil polyethylene sheeting as a critical barrier. Post signs.

2. Remove lead sheeting intact by unscrewing panels from substrate. Doors with sandwiched lead sheeting shall be removed by the pins/hardware without disturbance to the sheeting within the core.

3. If unbolting panels cannot be performed, and cutting of sheeting is required, non-powered tool shall be used. Lead sheeting is relatively soft and pliable, manual tearing / cutting can be easily done. Absolutely no torching or welding on the lead sheeting or in the vicinity of the lead sheeting, until after the zone has been tested, cleared and released as a non-lead containment work zone.

4. Use wet methods and HEPA vacuums for dust control in compliance with Cal/OSHA regulation 8 CCR 1532.1. Do not dry sweep any dust or debris generated by removal of panels.

5. Wrap sheeting to prevent it from scratching and leaving score marks on the floor. Lead sheeting waste shall be rolled up and wrapped with 10-mil plastic sheeting, labeled, before taken out of the containment. All scuff marks left by the lead sheeting on any surfaces must be thoroughly scrubbed and cleaned.

6. Characterize and dispose of sheeting and debris as potentially hazardous waste.

7. HEPA vacuum debris daily for all work areas before leaving the site.

8. Triple wash all surfaces inside the containment prior to final lead wipe sampling by the Environmental Consultant.

Q. With respect to removing painted plaster ceiling/wall/column lead paint removal, Non-Profit Entity shall:

1. Provide ladders, scaffolding, etc., to access and remove paint and or paint/substrate from all surfaces, as applicable. Ceilings shall be scraped first in each area.

2. Remove materials at applicable locations. Wet wipe, as required. Lightly dampen the work surface and mist the surrounding area continuously throughout the scraping process.

3. Scrape and nylon brush decorative or rough ceiling surfaces or trusses, as applicable, to remove the paint and or paint/substrate. Then, HEPA vacuum these surfaces.

4. After scraping, HEPA vacuum all surfaces to remove any remaining dust.

R. With respect to exterior paint removal, Non-Profit Entity shall:

1. Place drop cloths on the ground surrounding surfaces to catch any debris from scraping lead-based coatings, as applicable.

2. Erect temporary protective covers over pedestrian walkways and at points of passage for persons or vehicles, which may remain operational during the course of the paint removal.

3. Protect glass, metal trim and attachments, polished stone, or other sensitive materials and finishes from contact with chemical paint removers by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with the manufacturer's recommendations. Do not apply liquid masking agent to painted or porous surfaces, or masonry, as applicable.

S. With respect to steel/metal/piping spot removal, Non-Profit Entity shall:

1. Remove paints on steel components scheduled for welding or torching using a chemical stripper, needle gun or other approved methods as outlined in the approved Non-Profit Entity’s Hazardous Materials Management Plan (HMMP).

2. Use drop cloths, polyethylene barriers, Hudson and airless sprayers and other methods as required for dust control.

3. Characterize and dispose of paints, rags, etc., separately for possible disposal as a Hazardous Waste.

T. With respect to removal of surface coatings with power tools, Non-Profit Entity shall:

1. Where mechanical removal of surface coatings constitutes a Level II activity, provide power tools, to the extent feasible, with local HEPA exhaust or dust collector systems to capture the aerosolized lead.

a. Removal with power blasting tools: For steel coated structures and as approved by the SAR group within the City Public Works Department or designee, power blasting tools may be used for removal of the lead-based paint or hazardous coating materials. To the extent a containment construction will be required to emissions. As part of the HMMP a detailed work plan including an enclosure system with dust collection systems and exhaust ventilation as needed shall be submitted and approved by the SAR group within the City Public Works Department prior to using this method.

b. Removal with power washing: For industrial facilities or where otherwise approved by the SAR group within the City Public Works Department or designee, power washing may be used for removal of the lead-based paint or contamination. Use of this method requires construction of containment, water collection system, a filtering system, and proper disposal of the wastewater. Adequately protect adjoining sensitive materials and equipment from damage or inclusion within the lead abatement waste. Deactivate electrical systems or adequately protect them prior to the power washing. A detailed work plan including an enclosure system shall be submitted and approved by the SAR group within the City Public Works Department prior to conduct such activities.

c. Removal with Sodium Bicarbonate Blasting: For areas requiring complete removal of all coating residues, use of sodium bicarbonate blasting may be used to supplement scraping or chemical stripping. Use of this method requires construction of containment and filtering system to segregate activities and waste from active work areas. Adequately protect adjoining sensitive materials and equipment from damage or inclusion within the lead abatement waste. Deactivate electrical systems or adequately protect them prior to the water and sodium bicarbonate blasting. A detailed work plan including enclosure shall be submitted and approved by the SAR group within the City Public Works Department prior to such activities.

U. With respect to removal of lead containing jacketed telephone cable, Non-Profit Entity shall comply with the following:

1. Removal, handling and disposal of lead jacketed telephone cables that may be encountered during demolition activities shall be conducted in accordance with the Cal/OSHA's Construction Lead Standards 8 CCR 1532.1 and CDPH Regulation 17 CCR Section 3500 through 36100. This includes, isolation controls, personal protective procedures and dust controls.

2. Prevent dust generated from trimming, cutting and otherwise manhandling lead sheathed telephone cables, dust from deconstructing and hauling off outmoded equipment and dust from soldier waste deposited on floors.

3. Isolate and remove in its entirety each cable designated for removal. Use appropriate equipment and work practices to prevent lead releases. If at all feasible remove the cables using hand electrical shear tools with local HEPA exhaust or dust collector systems to capture the aerosolized lead. To further minimize lead dust during the cutting, apply isolation materials such as foam or "Vaseline" in the entire area of the cutting.

4. Segregate, containerize, and characterize the electrical cables for waste disposal.

V. With respect to removal of transite wall and ceiling board, Non-Profit Entity shall:

1. Remove transite board using wet cleaning methods and HEPA vacuuming. Avoid unnecessary sawing and breakage. Take out as whole sheets, if possible. Remove debris remaining at the nails, screws, or other attachments to the studs and joists. Scrape residue remaining on studs or joists flush with the surface of these materials, if these materials are not scheduled for demolition. Continually mist the air with an airless sprayer or Hudson sprayer to lockdown suspended particulate.

2. Clean up debris from pipe insulation, fireproofing, acoustical insulation, or other sources (as applicable), which may exist on the topside of the studs or within the wall or ceiling cavity.

3. Clean up the area and dispose of the asbestos-containing waste. Panels may be wrapped in burlap or cardboard, prior to bagging, to protect against penetrating the disposal wrapping.

W. With respect to removal of transite pipelines, ducts, breechings, or flues, Non-Profit Entity shall:

1. Remove using full isolation procedures satisfying the requirements of Cal/OSHA Regulation 8 CCR 1529, Work Class II.

2. Remove transite materials using wet cleaning methods and HEPA vacuuming. Avoid unnecessary sawing and breakage. Take out as whole lengths, if possible, cutting at the hanger supports and wrapping the separated sections in a double layer of polyethylene sheeting. Note that water penetration of this material is usually minimal.

X. With respect to removal of underground transite piping or pipe insulation, Non-Profit Entity shall comply with the following:

1. Carefully excavate the areas identified for the underground utility or with potential to encounter underground piping. Using wet methods mist the excavated areas, as the pipe gets uncovered. To the extent feasible provide an enclosure for removal as required to control airborne fibers.

2. Using wet methods and HEPA vacuuming techniques, remove pipe intact to the extent feasible. Cutting abrading or breaking the pipe shall be prohibited. Immediately place pipe in polyethylene bag or wrap in polyethylene and label the waste.

3. At the end of each work shift, all removed pipe shall be transferred to a closed receptacle.

4. Clean up the regulated area and dispose of the asbestos-containing waste. Duct or flue edges may be wrapped in burlap or cardboard, prior to polyethylene sheeting, to protect against penetrating the disposal wrapping.

5. Dispose of transite as Category 2 non-friable waste, double wrapping intact segments in six (6)-mil polyethylene sheeting.

Y. With respect to removal of exterior vapor barrier or expansion joint, Non-Profit Entity shall:

1. Cordon area and set up drop cloths on the ground under the removal area and abate using wet methods. Seal vents, windows, etc. with one layer of six (6) mil polyethylene sheeting as a critical barrier. HEPA-vacuum surrounding area and drop cloths before final visual clearances.

Z. With respect to removal of PCBs and mercury containing lamps, Non-Profit Entity shall comply with the following:

1. Disassemble all light fixtures to visually examine the ballasts; ballasts that are not labeled as non-PCB shall be collected and disposed of as PCB-waste. Collect fluorescent tubes for disposal / recycling as mercury containing wastes.

2. Handling and Disposal of Lamps

a. Spent fluorescent and other mercury-containing lamps shall be considered a hazardous waste as per the California Department of Health Care Services.

b. Ship lamps to a commercial recycler (e.g., Mercury Technologies) where they shall be crushed and the mercury reclaimed.

c. Comply with DOT requirements for manifests, with evidence of proper disposal provided to the SAR group within the City Public Works Department, including a log of shipping dates and quantities.

d. Remove mercury fluorescent lights and load into secured cardboard boxes for shipment to prevent unnecessary breakage.

e. In the event of lamp breakage, clean-up broken glass and debris immediately, using a HEPA-filtered vacuum for final clean up.

AA. With respect to loose debris cleanup, Non-Profit Entity shall comply with the following:

1. Construction operations may occasionally disturb loose and peeling paints outside the immediate work area through building vibration or other means. All such loose paint and debris shall be cleaned-up daily using a HEPA-filtration vacuum. Provide adequate protection to offset future disturbances by abating or otherwise sealing affected surfaces.

2. Clean-up background or construction-related dusts from demolition of lead-coated elements or other contaminant sources using wet methods and HEPA-filtered vacuums.

3. Do not dry sweep.

BB. With respect to stabilization of loose & peeling paints, Non-Profit Entity shall comply with the following**:**

1. Post notices, including CDPH, Cal/OSHA and EPA RR&P notices, as applicable, prior to start of work.

2. Manually scrape and stabilize loose and peeling paints prior to demolition of painted substrates using drop cloths, wet methods, and HEPA vacuums for dust control in compliance with Cal/OSHA regulation 8 CCR 1532.11 and the EPA's RR&P rules. Avoid dry sweeping. Burning of paints, use of heat guns greater than 1,100 deg. F, and use of leaf blowers or compressed air for clean-up are prohibited.

3. Use of mechanical equipment, such as sanders, grinders and needle guns without a HEPA-vacuum attached thereto are prohibited for sites with children under the age of 6 as occupants (per EPA's RR&P rules).

4. Work areas shall be cleaned-up of lead hazards daily before leaving the site.

CC. For mechanical sanding, Non-Profit Entity shall comply with the following:

1. Sanding is prohibited without written authorization from the SAR group within the City Public Works Department.

2. If approved, work areas requiring mechanical sanding or stripping of painted surfaces with any lead content shall be fully contained with polyethylene dust barriers, establishing negative pressure of the zone, and using HEPA-filtered tools and other dust control procedures as outlined under 8 CCR 1532.1.

DD. For prime or painted structural steel spot abatement, Non-Profit Entity shall comply with the following:

1. Manually scrape paints and primers at locations of new welded connections as shown in Contract Documents. Use an approved chemical stripper with "low odor" and scrape using manual, wet methods, drop cloths, visqueen barriers, and HEPA vacuums for dust control in compliance with Cal/OSHA regulation 8 CCR 1532.1, CDPH regulation 17 CCR Section 35001 through 36100 and the EPA's RR&P rules, as applicable.

2. Avoid dry sweeping, burning of paints, use of heat guns greater than 1,100 deg. F, and use of leaf blowers or compressed air for clean-up. Use of mechanical equipment, such as sanders, grinders and needle guns without a HEPA-vacuum attached thereto are prohibited for this site per the EPA RR&P rules. Work areas shall be cleaned-up of lead hazards daily before leaving the site.

3. Note that 8 CCR 1537(c) and SFPUC require stripping of any painting coating for a distance of at least 12-inches from the area of heat application (torching/welding, etc.), or workers shall be required to use supplied air respirators in accordance with 8 CCR

1532.1 or the provisions of 8 CCR 1536(b)(c). Dispose of stripper and contaminated drop cloths as hazardous waste.

4. Ventilate the abatement zone as required by the stripper manufacturer. Workers shall wear combination organic (charcoal) and HEPA filter respirator cartridges, as necessary.

5. Note that despite the quality of abatement, some minor residues may remain on structural elements as well as paints and primers on inaccessible surfaces, which cannot be abated. During the welding phase, Non-Profit Entity shall operate “smog hogs” or localized exhaust units in the vicinity of welding work to prevent build-up of airborne lead contaminants within occupied and other construction areas. Localized exhaust units shall exhaust outdoors.

6. For Disposal & Cleanup: Demolish and dispose of intact painted substrates as non-hazardous waste. Characterize and dispose of loose and peeling paint debris, chemical strippers, rags, etc. as potentially hazardous waste. Clean-up drop cloths and HEPA vacuum loose and peeling chips and debris daily for all work areas before leaving the site.

EE. Non-Profit Entity shall comply with the following encapsulation procedures:

1. Do not start encapsulating work until receiving a notice to proceed from the SAR group within the City Public Works Department to apply encapsulant.

2. Prepare and apply encapsulant in accordance with the manufacturer's specification, using airless spraying equipment. Because application by spraying could cause dissemination of residual fibers, encapsulant must be applied with as much caution and at as low a nozzle pressure as possible.

3. Apply encapsulant in 2 coats with a tint to be approved by the SAR group within the City Public Works Department. Apply the first coat as a penetrating encapsulant, allowing it to properly dry. Then apply a second coat of bridging encapsulant.

4. Apply penetrating type encapsulant to provide complete penetration of asbestos fireproofing surfaces exposed during the controlled renovation activities in accordance with manufacturer's recommendation. Apply encapsulant using airless spray equipment.

FF. Non-Profit Entity shall comply with the following daily cleaning procedures:

1. Clean asbestos-containing debris and contaminated water from the work area daily using wet methods and HEPA vacuuming equipment. Place asbestos debris and water in bags, sealed and either stored or removed from the work area.

2. Worker decontamination enclosure system; clean the clean room, shower, and equipment room daily or as required more frequently to maintain acceptable clean room perimeter air sample total fiber counts. Keep the clean room floor dry and free of any waste. Repair and replace the clean room flap whenever damaged or torn.

GG. Non-Profit Entity shall comply with the following in bagging, drumming, and handling waste:

1. Protect all workers handling waste in full body protective clothing and at least a respirator approved by NIOSH for protection against asbestos. Workers transporting clean, sealed drums or other clean, sealed waste may handle waste with less protective clothing if approved by the SAR group within the City Public Works Department or its designee.

2. Do not allow asbestos waste to dry out prior to sealing bags.

3. Seal bags of asbestos-containing waste with tape within the work area. Seal bags with a goose neck fold: first twist bag and seal top opening with tape; fold remaining bag extension over the first tape enclosure and re-tape around top of bag there by double sealing the top opening. No free-flowing water shall be present at any time in the bag. If free-flowing water is present, Non-Profit Entity shall add absorbent into the bags to remedy the condition.

4. Wrap and seal waste treated as asbestos contaminated that cannot be contained in bags in 6-mil clear polyethylene plastic or other impermeable material approved by the SAR group within the City Public Works Department. Wrap objects that will tear, cut, or damage the integrity of the plastic in a protective material such as canvas or burlap to reduce the potential for damage to the plastic or other impermeable material.

5. Sealing Waste from Glove Bag with Cut-Out: Wrap sections of piping covered with ACM in a minimum of two layers of 6-mil polyethylene sheeting before removal from the work zone.

6. While in the work area, decontaminate bags and/or wrapped objects of any bulk debris by wet wiping. Utilizing the equipment decontamination enclosure system, pass the bags and/or wrapped objects into the washroom where they will be thoroughly decontaminated by wet sponging with amended water. Decontaminated bags will then be passed directly into the holding room where they will immediately be placed in a second clean bag and sealed with tape.

7. Wrap and seal decontaminated objects in a second layer of impermeable material.

8. Deposit bags with friable hazardous waste into clean sealable drums for transport. Seal filled drums. Mark drums with the label prescribed by the EPA, including the Generator I.D. Number or source location and the Waste Manifest Number.

9. Deposit bags into clean sealable dumpster for transport, except non-friable roofing which can be deposited directly into double-lined waste dumpsters for disposal at a landfill accepting Category I, non-friable ACM.

10. The SAR group within the City Public Works Department must be notified prior to removing materials from the work area and prior to loading waste into dumpsters or other transport containers for removal from the site. At least 24 hours of advance written notification must be given.

END OF SECTION

SECTION 02 81 10 - ENVIRONMENTAL MANAGEMENT OF EXCAVATED MATERIALS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Up to 80% of the surplus soils to be excavated, transported and disposed may be classified as a Hazardous Waste and/or contaminated material. The Work will involve working environments that may be hazardous, contaminated, or non-hazardous to activities associated with the excavation, handling, transportation, and disposal of all excavated materials and other wastes in the Project Site with emphasis to Hazardous Materials.

B. Serpentine, serpentinite, or other ultramafic rocks and soils containing naturally occurring asbestos (NOA) will be encountered on the Project Site.

C. Such hazardous, contaminated, and non-hazardous environments include, and are not limited to Hazardous Materials and non-Hazardous Materials, soils, groundwater, heavy metals, petroleum hydrocarbons, polynuclear aromatic hydrocarbons, organic compounds, serpentine rock and ultramafic material (which may contain natural occurring asbestos - NOA), lead-based paint materials, sewage, sludge, debris, grit, sewer gases, bacterial/biological contamination, rail road ties, oxygen deficiency, and confined spaces.

D. If Hazardous Materials are discovered, immediately notify the SAR group within City Public Works Department and the City's Authorized Representative both orally and in writing.

E. Provide employees with all levels of personal protective equipment (PPE), including personal air monitoring if required. Non-Profit Entity shall have taken into account the productivity losses, if any, due to the use of respirators and personal protective equipment.

F. Do not use the Project Site as a storage facility for work being performed at another site.

G. Lead Hazards: All Work that affects any level of lead will at a minimum be performed under the Cal/OSHA Lead in Construction Standard 8 CCR 1532.1 as well as all federal, State, and local regulations.

H. Hazardous Waste and non-Hazardous Waste shall only be disposed at permitted California landfills (22 CCR 66262), equivalent out-of-state landfills (40 CFR 262), permitted recycling facilities, and at other projects as approved by the SAR group within City Public Works Department.

I. Any screening or crushing operations of excavated materials cannot proceed without the appropriate BAAQMD and Cal-EPA/DTSC permits.

J. A Site Mitigation Plan was prepared and approved by the San Francisco Department of Public Health, the requirements of which are included in this Section 02 81 10.

1.2 RELATED SECTIONS

A. Section 01 35 43 Environmental Procedures

B. Section 01 35 50 Additional Environmental Procedures

1.3 SUBMITTALS

A. Non-Profit Entity shall submit the documents listed below no later than ten Days before start of Work at the Project Site or NTP2, whichever is earlier, before any soil disturbing activity may begin.

B. Non-Profit Entity shall submit the following to the SAR group within City Public Works Department as separate submittals:

1. Name environmental consultant and the accredited environmental laboratory, if used.

2. Pre-Excavation Soil Profiling Sampling Plan draft and final version in accordance with Part 1.4 herein.

3. An Environmental Site Assessment (Phase II) draft and final report in accordance with Part 1.4 herein.

4. Site Mitigation Completion Report (SMCR) as requested by San Francisco Department of Public Health.

5. Waste profile application package on each waste stream planned for disposing the excavated soil. Prepare and submit waste profile application to each proposed disposal facilities for acceptance. The formal waste profile application will also include, if any, additional information (such as slurry additive applied as part of the construction) shall be included in the formal waste profile application.

6. Waste Profile # (s) from the permitted landfills or the permitted disposal & recycling facilities that will be used.

7. Workers Mandatory Environmental Training Records in accordance with Part 1.7 herein, as requested by the City as Regulator.

8. Transporter's current Class 1 Certificate of Compliance from the California Highway Patrol and Hazardous Substance Removal Certification in accordance with Part 1.9 herein, as warranted.

9. Copy of the Non-Hazardous Waste form for and subsequent copies attached to the monthly Soil Disposal Spreadsheet in accordance with Part 1.10 herein.

10. Hazardous Waste Manifest in accordance with Part 1.11 herein, as warranted.

11. The original source of where the import soils are coming from, the name of the laboratory used to analyze the soils, and the date of chemical analysis, and the analytical test results, and frequency of the analytical testing in accordance with Part 3.3 herein.

12. Monthly Import Fill Spreadsheet in accordance with Part 3.3 herein.

13. Cal/OSHA asbestos Competent Person training records as pertaining to requirements specified in the Cal/OSHA standard 8 CCR § 1529, and when Serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) is present.

14. Cal/OSHA asbestos worker training records as pertaining to requirements specified in the Cal/OSHA standard 8 CCR § 1529, and when Serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) is present.

1.4 CLASSIFICATION AND MANAGEMENT OF EXCAVATED MATERIALS

A. The pre-excavation profiling shall be done so as to classify the excavated soils for a “load and go” disposal to a permitted California landfill or equivalent out of State landfill for Class I, II & III disposal, or permitted disposal & recycling facilities.

B. An intermediate soil staging and loading facility is not provided as part of this Agreement. Non-Profit Entity may use its own or a subcontracted intermediate soil staging and loading facility. Such a facility shall be permitted in accordance with applicable Laws and meet the definitions of the California Code of Regulations (CCR) Title 22, 66260.10 for "Individual generation site", "Onsite", "Onsite facility".

C. Except as otherwise stated in the Contract Documents, Non-Profit Entity shall perform or cause to be performed excavation, loading, handling, transportation, and disposal of all surplus waste excavated soils and sediments from dewatering activities, meeting requirements of a certified and permitted California landfill or an equivalent out-of-state landfill. All such disposal activities shall require the approval of the SAR group within City Public Works Department prior to actual loading and disposal.

D. Conditions for acceptance at various local landfills/waste disposal facilities include, filling out of a waste profile, that the surplus waste excavated soil hauled to the landfill will have greater than 50 percent solids, and cannot have any free liquids. Non-Profit Entity is responsible for meeting landfill requirements for disposal.

E. Non-Profit Entity shall maximize reuse of excavated soils. Excavated soils can be reused anywhere within the Project Site. If the soils from this area cannot be reused, such surplus waste excavated soils shall be disposed at a certified and permitted California landfill for Class I, or Class II, or Class III, disposal or an equivalent out-of-state landfill. Acceptable landfills/waste disposal facilities for California Class I, II and III wastes are:

1. Republic Services, http://www.republicservices.com/Corporate/Business/WasteRecycling/Facilities/landfills.aspx

2. Waste Management Inc, https://www.wm.com/find-a-facility.jsp

3. Clean Harbors Buttonwillow LLC, www.cleanharbors.com

F. Except for Article 1.4 herein, Non-Profit Entity shall not conduct any environmental or Hazardous Materials sampling or analysis without prior permission from the SAR group within City Public Works Department. If approved, the environmental or Hazardous Materials sampling shall be done in the presence of a SAR group within City Public Works Department. This does not include the Principle Project Company’s obligation for any personnel air monitoring.

G. Non-Profit Entity shall inform the SAR group within City Public Works Department in writing and obtain City’s approval prior to any sale, supply, or offer to sell excavated material. Comply with Bay Area Air Quality Management District’s (BAAQMD's) Regulation 11, Rule 14 for asbestos-containing serpentine. Additional information may be found at the California Air Resource Board Advisory #161 , and Title 17, Section 93106 of the California Code of Regulation (CCR). Non-Profit Entity shall perform all the engineering and chemical testing as required by the SAR group within City Public Works Department and applicable Laws and policies.

H. Cal/OSHA regulations are triggered when asbestos is present in any amount. Non-Profit Entity shall fulfill the obligations under CCR Title 8, Section 1529. The regulation requires monitoring to determine exposure levels, wet methods, respirators and protective clothing, controlled access to the work area, and similar precautions associated with asbestos work regardless of the origin of the asbestos. Use of a competent person to oversee the work may also be

necessary. Utilize an experienced certified industrial hygienist (CIH) and a professional geologist (PG) to assist it with this work.

I. Asphalt, concrete, aggregate base, vegetation, debris, wood, obstructions, and other organic, unsound or deleterious matter shall be excavated separately from the soil layer, and shall not be reused as backfill. The removal, management, transportation, and disposal of asphalt, concrete, aggregate base, vegetation, debris, wood, obstructions, and other organic, unsound, or deleterious matter shall be incidental to its respective bid items.

J. Soils of different waste disposal classification shall be segregated when excavated, managed, transported, and disposed separately with no mixing of the different types of wastes.

K. When performing the Work, Non-Profit Entity shall take into account productivity losses, if any, due to but not limited to encountering and managing Hazardous Materials or non-hazardous materials, the use of respirators and personal protective equipment. The City as Regulator reserves the option and right, at any time, to use its own forces to excavate, remediate, bioremediate, haul, recycle, or dispose of both, Hazardous Materials and non-Hazardous Materials at its own facilities, State-approved facilities, contracted facilities or contracted out-of-state facilities.

1.5 DEFINITIONS

A. Waste: Discarded material of any form as defined by the Code of Federal Regulations 40 CFR 261.2 and the California Code of Regulations 22 CCR 66261.2 .

B. Hazardous Waste: This may include excavated material, friable asbestos containing material (ACM) that is not naturally occurring in rock and soil, loose and peeling lead–based paints, and other material that is regulated by and requires management, handling, transport, treatment, storage, and disposal according to the requirements of the Federal Resource conservation Recovery Act (RCRA) and associated regulation 42 U.S.C. 6901 et seq. and 40 CFR Part 260 et seq., or the California Hazardous Waste Control Law and associated regulations (Health and Safety Code 25000 et seq. .

C. Management of excavated materials or “management” means transportation, transfer, recycling, recovery, disposal, handling, processing, storage, and treatment of excavated materials in accordance with applicable Laws.

D. Soil: earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Soil Conservation Service. Soil does not include asphalt, concrete, aggregate base, vegetation, debris, wood, obstructions, and other organic, unsound, or deleterious matter.

E. Project Site Mitigation Plan (Project SMP): In accordance with San Francisco Health Code Article 22A and 22B, a Project SMP was approved by the San Francisco Department of Public Health on October 1, 2024, which contains mandatory requirements for managing all soil excavation activities to protect the environment and public health.

F. Excavated material includes all soils (fill, alluvium, bedrock), and other materials generated in the course of the Work, which shall be excavated, handled, or disposed under this Agreement.

G. Waste excavated soil is excavated soil that is a waste and cannot be reused within the Project Site in accordance with reuse criteria of this Section. It is surplus and shall be managed, transported, and disposed of as part of this Agreement. Waste excavated soil does not include asphalt, concrete, vegetation, wood, debris, obstructions, and other organic, unsound, or deleterious matter.

H. Naturally Occurring Asbestos (NOA): NOA in the City and County of San Francisco is typically associated with ultramafic, metamorphic or metamorphosed rocks within the Franciscan mélange, including serpentinite, greenstone, and blueschist. There are six regulated naturally occurring asbestos minerals: chrysotile, crocidolite (asbestiform riebeckite), amosite (grunerite-cummingtonite), tremolite, actinolite, and anthophyllite (CGS 2002). The six asbestos minerals are divided into two distinct mineral groups; serpentine minerals (chrysotile), and amphibole minerals, which include the remaining five above-mentioned minerals. These asbestos minerals are classified as known human cancer-causing substances by local, state, and federal health agencies (DTSC 2004), and regulated by name.

I. The following soil classifications with corresponding requirements are established solely for the purpose of payment for the handling, transportation and disposal of the excavated materials determined to be a waste:

1. California Class I (non-RCRA) hazardous waste: is waste excavated material that is classified as California (non-RCRA) hazardous waste, requires disposal at a California Class I disposal facility or a similarly permitted out-of-state facility and requires transport by a registered hazardous waste transporter.

2. California Class II and Class III designated waste (Class II and Class III): is non-hazardous waste, and is not a California or Federal hazardous waste. It requires disposal at a California Class II or Class III disposal facility or at a similarly permitted out-of-state facility without the need of a registered hazardous waste transporter.

3. Asbestos containing rock and soil where the asbestos is naturally occurring and not associated with cross contamination by building materials may be classified as California Class II waste. Non-Profit Entity shall contact the landfill it identifies to receive waste to assure that asbestos containing naturally occurring materials meet the acceptance criteria of the California Class II landfill.

1.6 WORKER'S MANDATORY ENVIRONMENTALTRAINING

A. Non-Profit Entity, and its DB Contractor, shall:

1. Provide sufficient numbers of properly trained personnel who may come in contact with, may be exposed to, disturb, operate equipment in, or otherwise excavate, handle, transport and dispose hazardous or contaminated excavated materials, asbestos, naturally occurring asbestos (NOA), and silica.

2. Ensure workers have the environmental training, listed below, and training certifications and personal protective equipment (PPE), as required by applicable Laws. Submit certifications or proof of such training when requested by the SAR group within City Public Works Department.

3. Hire an experienced Certified Industrial Hygienist (CIH) and a Registered Geologist (RG) to assist it with the following:

a. HAZWOPER: This training is required of Principle Project Company and DB Contractor's employees and Subcontractors who may come in contact with, may be exposed to, disturb, operate equipment in, or otherwise excavate, handle, transport and dispose hazardous or contaminated excavated materials, asbestos, naturally occurring asbestos (NOA), and silica. Employee(s) shall possess a current 40-hour Hazardous Waste Operation and Emergency Response ("HAZWOPER") training and certification and the associated 8-hour HAZWOPER refresher training (in accordance with Sections 5192 and 5144 of Title 8, CCR and Title 29 CFR, Sections 1910.120 and 1910.134), and shall be certified to wear appropriate personal protective equipment and respirators.

b. Cal/OSHA Asbestos Class II asbestos operations and Asbestos Competent Person (ACP): Non-Profit Entity shall meet its obligations under CCR Title 8, Section 1529 when Serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) is present.

1) Non-Profit Entity and its DB Contractor shall have its workers, trades people and Asbestos Competent Person that will come in contact with serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) be trained for the Class II work activity level as per the Cal/OSHA standard 8 CCR § 1529.

2) Non-Profit Entity shall have a Cal/OSHA Asbestos Competent Person as it pertains to requirements specified in the Cal/OSHA standard 8 CCR § 1529, and when serpentine, serpentinite, or other ultramafic rocks containing Naturally Occurring Asbestos (NOA) is present.

c. SILICA: Non-Profit Entity shall meet its obligations under the Respirable Crystalline Silica standard for construction, found in the California Code of Regulations, Title 8, Sections 1530.1, 1532.3, and 5155; and OSHA Regulation 29 CFR 1926.1153.

d. Health and Safety training.

e. Lead awareness training (for all trades who will come in contact and disturb lead containing paints as per Cal/OSHA 1532.1 Lead in Construction standard). If personal exposures to the workers exceed the 8-hr Permissible Exposure Level (PEL) of 50 micrograms/cubic meter, such worker(s) must have received training as a CDPH Certified Lead Worker (as per 17 CCR Division 1, Chapter 8).

f. Dust Control and Mitigation awareness training to enable Non-Profit Entity's personnel to comply with Sections 01 35 49 Minimum Environmental Procedures and 01 35 50 Additional Environmental Procedures.

g. Medical examination and blood tests (as warranted).

h. Respiratory protection (including current respirator fit test records).

i. Other training as necessary and pertaining to the work being conducted.

B. Only qualified persons shall engage in Hazardous Materials-related work. Non-Profit Entity and DB Contractor personnel, who come in contact with, are exposed to, disturb, operate equipment in, or otherwise handle hazardous or contaminated materials, or demolition debris shall have appropriate hazards communication, environmental training and medical monitoring.

C. The City will not grant extensions of time or increases in payment for costs associated with Non-Profit Entity's productivity losses, inability to provide properly trained personnel, costs of training Non-Profit Entity's workers, or hiring of required personnel.

D. It is Non-Profit Entity's responsibility and liability to ensure that its workers and contractor have the proper training, personal protective equipment (PPE), and respiratory protection.

E. Non-Profit Entity and its DB Contractor, not the City, is responsible for the health and safety, training, personal protective equipment (PPE), and monitoring and protection from exposure risks of its employees, as per federal, state and local statutes, laws and regulations.

F. Non-Profit Entity is obligated to conduct any required personal air monitoring of its workers, at its own expense, in accordance with Section 01 35 45 Health and Safety Criteria.

1.7 REGULATORY INDEMNIFICATION

A. Non-Profit Entity is specifically alerted to, and shall familiarize itself and its DB Contractor to, the liability statutes of:

1. The Comprehensive Environmental Responses, Compensation, and Liability Act (CERCLA) of 1980 found in 42 USC, Section 9601 et seq.

2. The Superfund Amendments and Re-authorization Act (SARA) of 1986 found in 42 USC, Section 9601 et seq.

3. The California Hazardous Substance Account Act (HSAA) of 1981 found in California Health and Safety Code, Section 25300 et seq.

4. California Health and Safety Code, Division 20, Regulations and CCR 22 Section 6600 et. seq.

5. Cal/OSHA Lead in Construction Standard, Title 8, CCR, Section 1532.1.

6. BAAQMD Regulation 6 for Particulate Matter and Visible Emissions and Regulation 11 for Hazardous Pollutants .

7. The Final Regulation Order of the California Code of Regulations (CCR) Title 17, Public Health, Section 93105, on Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations .

8. The California Air Resources Board (CARB) Asbestos Airborne Toxic Control Measure for Surfacing Applications.

9. The San Francisco Building Code Section 106.3.2.6

10. San Francisco Health Code, Article 22B - Construction Dust Control Requirements.

11. The DPW Dust Control Order 171,378.

B. Non-Profit Entity shall be responsible for all liability and costs necessary to prevent its own or DB Contractor's operations from violating federal, State, or local statues, laws, regulations, and policies.

1.8 REQUIREMENTS FOR THE TRANSPORTER

A. As warranted, Non-Profit Entity shall ensure that its drivers have in their possession, during the hauling of material and soil, all applicable State and local vehicle insurance requirements, valid driver's license, and vehicle registration and licensing. A current Class 1 Certificate of Compliance from the California Highway Patrol shall be affixed to each vehicle.

B. All hazardous materials/waste haulers shall possess a Hazardous Substance Removal Certification granted by the State of California, Contractors State License Board (1-800-321-2752 or http://www.cslb.ca.gov), and all other required certifications and insurance.

C. Haul trucks carrying excavated material shall be loaded so that the material does not extend above the walls of the truck bed, and there is no leakage from any vehicle. All truckloads shall be covered.

D. All truckloads containing Naturally Occurring Asbestos (NOA) and Serpentinite require both covering the load as well as lining the underneath of the truck bed (“burrito wrap”) with 10mil HDPE. This is required regardless if the material is wet, hazardous, or non-hazardous.

E. Non-Profit Entity shall be responsible for cleaning up excavated material spill, which occurs during loading, handling, and transportation.

F. Preparation for shipment: Marking, labeling, placards, and packaging prior to transport shall be in accordance with all regulations and shall be the responsibility of Non-Profit Entity.

1.9 USE OF NON-HAZARDOUS WASTE MANIFEST FOR CLASS II MATERIAL OR LESSER

A. For transportation and disposal of the non-Hazardous Waste, Non-Profit Entity shall initiate and fill out a non-Hazardous Waste profile form with the Class II/III landfill of its choosing. Then, submit this waste profile form to the SAR group within City Public Works Department for its approval & signature. Next, Non-Profit Entity shall prepare a non-hazardous waste manifest form from the landfill. The non-hazardous waste manifest form shall be completed for each vehicle carrying excavated material classified as California Class II and Class III designated waste, or of a lesser waste classification. Non-Profit Entity shall submit the non-hazardous waste manifest form to the SAR group within City Public Works Department for the Generator's signature at least 72 hours in advance of the day of the off-haul with an estimate of the number of loads scheduled for off-haul. The non-hazardous waste manifest form shall contain the following information before providing the final copy to the SAR group within City Public Works Department to sign:

1. Name, address and phone number of the Generator, Project name, and Specification Section number.

2. Non-Profit Entity's billing information

3. The soil profile approval number and description of the waste.

4. Name, address and phone number of the transport company.

5. The name, address, and telephone number of the receiving facility i.e., disposal facility.

B. The City will not be responsible for off haul delays if Non-Profit Entity does not notify the SAR group within City Public Works Department in a timely manner to sign the non-hazardous waste manifest forms.

C. On a monthly basis, Non-Profit Entity shall provide the SAR group within City Public Works Department with a copy of each completed non-hazardous waste manifest Form (with the landfills signature) and its corresponding certified weight ticket.

1.10 HAZARDOUS WASTE MANIFESTING PROCEDURES FOR CLASS I MATERIAL

A. As warranted, Non-Profit Entity shall furnish all labor, materials, equipment, and incidentals required to transport those materials identified as Hazardous Waste for the purpose of disposal.

B. Non-Profit Entity shall comply with all applicable regulatory requirements listed as well as other applicable federal, State, or local laws, codes, and ordinances, which govern or regulate transportation of wastes (including but not limited to DOT-HM 181 in accordance with 49 CFR 172).

C. All material classified as hazardous waste (Federal Class1 RCRA and California Class1 non-RCRA wastes only) shall be hauled off using a licensed hazardous waste transporter and the uniform hazardous waste manifest form (DTSC Form 8022A and/or EPA Form 8700-22 a.k.a. the manifest).

D. Preparation and handling of waste manifests:

1. For transportation and disposal of the Hazardous Waste, Non-Profit Entity shall initiate and fill out a Hazardous Waste profile form with the Class I landfill of its choosing. Then, it shall submit this Hazardous Waste profile form to the SAR group within City Public Works Department for its approval and signature. Next, Non-Profit Entity shall provide and prepare the Hazardous Waste manifest for each shipment of Hazardous Wastes from the Project Site. Non-Profit Entity is hereby notified that Hazardous Waste manifest, waste profiling, and landfill service agreements have to be prepared and have to be approved by the landfill in advance of the off haul. Non-Profit Entity shall consult with the SAR group within City Public Works Department for local requirements in filling out the forms.

    a. The manifest shall describe the contents of each truck carrying materials to the waste disposal site, including the weight of the waste materials. Weight, not volume, shall be used to measure waste quantities.

    b. The SAR group within City Public Works Department will provide a Hazardous Waste generator identification number for use on the manifest. Non-Profit Entity shall provide the State Transporter identification number and telephone number.

    c. The licensed transporter shall also sign and date the manifest indicating that it has accepted the load described in the manifest on that particular day.

    d. Only a City employee (and not Non-Profit Entity) from the SAR group within City Public Works Department will sign the manifest for the “generator” of the waste.

E. Non-Profit Entity shall notify the SAR group within City Public Works Department 72 hours prior to off-haul of all excavated material. If the manifest

and other forms above are to be signed by the SAR group within City Public Works Department during periods other than the hours stipulated above, Non-Profit Entity shall give an additional 72-hour advance notice to the SAR group within City Public Works Department.

F. The SAR group within City Public Works Department will sign and keep the Generator's copy and give the remaining copies to the licensed transporter.

G. The licensed transporter shall carry the hazardous waste manifest with each truckload using the traffic control approved routes for off haul

H. Within 2 days of its return, Non-Profit Entity shall provide the SAR group within City Public Works Department with the completed waste manifest. The completed waste manifest shall be certified by the receiver of the waste shipment, confirming that the shipment was received at the waste treatment or disposal facility designated in Non-Profit Entity's bid, and certifying the weight of the shipment.

I. Should any waste manifest not be returned within 35 days of shipment, Non-Profit Entity shall initiate follow-up, shall document such follow-up effort in writing with an Exception Report in accordance with 40 CFR 262.42 and/or 22 CFR 66262.42, and shall provide a copy to the SAR group within City Public Works Department.

J. Mandatory Information for the Manifest

1. Manifest Item 1: Generator's US EPA ID Number for Project. (Will be provided by the City after NTP as deemed necessary)

2. Manifest Item 3: Emergency response Phone: # 24 hours line to be provided by Non-Profit Entity

3. Manifest Item 5:

   Generator's Name and Mailing Address:
   SFDPH
   Municipal Hazardous Waste Program
   49 South Van Ness Avenue, Suite 600
   San Francisco, Ca 94103

4. Generator's Site Address:
   Name of the project

5. Manifest Item 14: The following information is mandatory:

   a. Contract JO # & Name of Project TBD

   b. Project Manager: TBD

   c. Project Manager Phone Number #:

   d. Profile # _____(Defined when manifest is generated. To be obtained and provided by Non-Profit Entity)

6. The City & County of San Francisco applies for an exemption from the BOE Hazardous Waste Generator fees in accordance with H&SC 25174.7, 25174.1; 25205.5, and 25345. (1) Hazardous wastes which result when a government agency, or its contractor, removes or remedies a release of Hazardous Waste in the state caused by another person, and in an area from beneath a public street and originated from earthquake fill."

1.11 UNDERGROUND TANK REMOVAL PROCEDURES

A. Non-Profit Entity is alerted to the fact that underground structures and tanks may be encountered during excavation. In the event that an underground storage tank, pipes, and associated fixtures are encountered, Non-Profit Entity shall immediately suspend the work in the immediate area and notify the SAR group within City Public Works Department as well as the San Francisco Department of Public Health.

B. Non-Profit Entity shall be responsible for removing and disposing the underground storage tank, pipes, and associated piping in the excavation area according to applicable laws and regulations including:

1. California Health and Safety Code (H&SC), Division 20, Chapter 6.9 (Section 25280 et.seq.)

2. California Code of Regulations (CCR), Title 23, Division 3, Chapter 16 (Section 2610 et.seq.)

3. California State Water Resources Control Board (SWRCB), Leaking Underground Fuel Tank (LUFT) Manual.

4. City & County of San Francisco, Department of Public Health, Underground Storage Tank Removal Regulations.

C. Non-Profit Entity shall obtain all permits, excavate, sample, analyze and prepare all reports as required by the San Francisco Health Code.

D. Non-Profit Entity shall prepare an Underground Storage Tank (UST) Closure Plan in compliance with Article 21 of the San Francisco Health Code, if UST's will be removed. Non-Profit Entity shall only remove the underground tanks, pipes, and related appurtenances only in the presence of an inspector from the City's Department of Public Health, the City's Fire Department, and the City's Authorized Representative.

E. Non-Profit Entity shall furnish documentation of the removal of an underground tank.

1.12 DISPOSAL OF RAILROAD TIES AND TREATED WOOD WASTE

A. Railroad ties and wood treated with preservatives (e.g. utility poles, piers, pilings, posts, pressure treated lumber, etc), such as creosote, and/or pentachlorophenol, and/or Copper Napthenate, Zinc Napthenate, and/or Copper, Chromium, Arsenate (CCA), and/or Ammonical Chromium, Zinc, and Arsenate (ACZA) (that are not otherwise recycled by Non-Profit Entity) shall be transported and disposed of at a California Class 2 (non-hazardous) landfill.

B. For wood treated with chemical preservatives such as Chromate Copper Arsenate (CCA) treated wood: Non-Profit Entity shall comply with the Federal Insecticide, Fungicide, Rodenticide Act (FIFRA) and by the California Department of Pesticide Regulation (DPR) and Department of Toxic Substances Controls (DTSC) Regulations or for the treated wood waste as per the Health and Safety Code (HSC) 25150.7 and 25150.

C. Non-Profit Entity shall fill out a separate waste profile with the landfill for such materials.

D. The transportation and disposal of the railroad ties and treated wood waste shall be paid as a change order.

1.13 POLLUTION INSURANCE

A. All Work that involves the management, handling, transportation, and disposal of hazardous and contaminated (non-hazardous) materials shall be performed either by Non-Profit Entity or a properly licensed Non-Profit Entity, who shall furnish evidence of Non-Profit Entity's Environmental Pollution Liability Insurance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 SITE MITIGATION PLAN REQUIREMENTS

A. Non-Profit Entity shall ensure that all activities associated with soil excavation comply with the requirements of the approved Project SMP (ee definitions above), which include but are not limited to:

1. Environmental controls, which include:

a. Health and safety requirements

b. Site control and exclusion zones requirements

c. Project signage requirements

d. Noise control requirements

e. Equipment decontamination requirements

2. Soil management, which includes:

a. Soil screening requirements

b. Soil containment requirements

c. Dust and fugitive emissions control requirements

3. Excavation activities, which include:

a. Bedrock asbestos requirements

b. Excavation dewatering requirement

4. Stormwater protection requirements

5. Backfilling and restoration requirements

6. Waste management and disposal, which includes:

a. Areas of potential concern requirements

b. Soil waste management requirements

7. Asphalt and concrete debris waste management requirements

8. Groundwater waste management requirements

9. Recordkeeping requirements

B. Upon completed implementation of the Project SMP, Non-Profit Entity shall submit the following documents to the SAR group within City Public Works Department as well as the City Public Health Department:

1. Verification sampling results from the areas of soil vapor samples SVP-41 and SVP-7S, that demonstrate either tetrachloroethene (PCE) is not present in sub-slab vapor at concentrations that pose a vapor intrusion concern following completion of the new slab, or PCE is not present in indoor air at concentrations that pose an unacceptable health risk following completion of the new slab and building envelope.

2. A Site Mitigation Completion Report (SMCR) which documents implementation of the SMP, including the dust and fugitive emissions control plan contained therein, including any additional sampling, soil disposal, and post-construction verification sampling activities.

C. In the event Project SMP requirements differ from the remainder of these Part 3 Sections 3.2 – 3.6, the Project SMP requirements shall supersede.

3.2 TEMPORARY STOCKPILING OF EXCAVATED MATERIAL AND IMPORT MATERIAL

A. Non-Profit Entity shall comply with Article 2.4: Excavation in the Public-Right of-Way and specifically Article 2.4.53(c) Storage of Materials and Equipment.

B. If feasible and in the event that the SAR group within City Public Works Department permits Non-Profit Entity to temporarily stockpile excavated and import material along the project alignment, the following conditions shall apply (including those in Sections 01 35 43 Environmental Procedures and 01 35 50 Additional Environmental Procedures):

1. Material shall be stockpiled at a location approved by the City. The volume of the stockpile will be limited within the discretion of the City.

2. Stockpiled materials shall not be stored for more than 48 hours.

3. The City retains the right to suspend the use of temporary stockpiling in the event of negative public perception, aesthetic concerns, and regulatory concerns. In such an event, Non-Profit Entity is directed to remove the stockpile within 24 hours.

4. After a stockpile has been removed, Non-Profit Entity shall wet sweep and vacuum the area, street, and sidewalk to remove residual soil, restore the site to its original condition.

5. Stockpiles of site backfill soils shall be tarped using a different colored tarp from that of import soils.

6. Stockpiles must be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile, and securely tarped & braced (weighted or tied down).

7. Stockpile Maintenance requirements in Section 01 35 43 Environmental Procedures and Section 01 35 50 Additional Environmental Procedures.

C. All costs associated with the temporary stockpiling of soils shall be borne by Non-Profit Entity. Such related incidental costs include, but are not limited to dust control, vacuum and wet sweeping, covering of stockpiles, multiple handling and transportation, multiple staging, work re-sequencing or rescheduling, time loss and standby time due to the duration of storage, and complying with Federal, State, and local requirements.

3.3 REUSE OF EXCAVATED SOILS AS BACKFILL

A. For backfill work: Non-Profit Entity shall maximize the reuse of native soils from the excavation, unless directed otherwise by the SAR group within City Public Works Department. In such a case, the following conditions shall apply:

B. The reuse of native soils as backfill material shall meet the requirements of Part 7 – Excavation, Backfill and Embankment of the Standard Specifications and Plans, Department of Public Works, City and County of San Francisco.

1. Native soils to be reused must not contain asphalt, concrete, bentonite, bay mud, clay, bricks, cobblestones, rocks, rubble, scrap metal, railroad tracks and ties, debris, contaminated soils, vegetation, wood obstructions, and other organic, unsound, objectionable, or deleterious matter. Non-Profit Entity shall remove such materials matter prior to the placement and reuse of fill.

2. Native soils must meet sieve and chloride requirements. Non-Profit Entity shall submit sample results to the SAR group within City Public Works Department prior to placement.

3. With approval by the SAR group within Public Works Department, native soils that are visually contaminated or are classified as a California Class I (non-RCRA) may be reused within the “area of contamination” and within 150 linear feet from its origin. Re-use of native soils must meet the engineering backfill and compaction requirements, is delineated with markers, documented, and meets the San Francisco Department of Public Health (SFDPH) requirements.

4. Non-Profit Entity shall notify the SAR group within City Public Works Department when and where the soils are used as backfill.

5. Surplus native soils shall be properly characterized and disposed of.

3.4 REUSE AND RECYCLING OF EXCAVATED SOILS AT OTHER FACILITIES

A. If Non-Profit Entity seeks to reuse or recycle surplus excavated soils at other projects or recycling facilities rather than dispose of them at a permitted landfill, Non-Profit Entity shall ensure the Contractor responsible for such reuse or recycle work, at its cost:

1. Demonstrate that with the existing environmental test results that the soils can be reused or recycled. Non-Profit Entity at its expense may be allowed to conduct additional testing, and characterization of the soils, only with prior approval by the SAR group within City Public Works Department.

2. Submit the acceptance criteria of the receiving facility or project.

3. Submit a letter of acceptance from the receiving facility or project. The letter shall indicate the volumes of soils accepted. Submit a value engineering calculation demonstrating cost savings to the SAR group within City Public Works Department. Any savings that result from such reuse or recycle work will be a spilt 50/50 between the City and Non-Profit Entity.

B. If the SAR group within City Public Works Department accepts the above, Non-Profit Entity shall in connection with such reuse or recycling:

1. be responsible for, and indemnify the City from, any and all increased cost and future liability arising from the reclassification, recycling, or reuse or the surplus excavated soils if, upon reuse or recycling of such soils at any time thereafter, it is determined that the surplus excavated soils are in fact hazardous, and should not have been reused or recycled.

2. Submit a copy of the letter of acceptance and all records, including the financial statements for the value engineering saving prior to the approval of the reuse or recycling of these soils.

3. Bear all costs for any additional testing, characterization and profiling of the soils, including the value engineering cost.

4. Bear all costs for the transportation, and any other associated cost for moving these soils to another project or to a recycling facility.

5. Revise and retain its pollution liability insurance to cover this work.

6. Repay any cost that the SAR group within City Public Works Department at its discretion will incur to conduct its own testing to confirm Non-Profit Entity’s findings.

7. Submit a monthly reuse and recycling spreadsheet of all reused and recycled materials generated from the Project. The spreadsheet shall include information of the receiving facility or project, quantity transported (Cubic Yards), weight tags from the recycling facility.

8. The City will issue a Change Order for this work to effectuate any saving that may accrue from this Section.

9. Such work shall only be done as a Change Order after the acceptance and approval of the City and after the Change Order is processed.

3.5 IMPORT SOIL (FILL)

A. Import soil (Fill) is soil or fill material received from sources outside of the Project right-of-way. Import soil (fill) includes import bedding sand and import recycled backfill sand used in the base and subbase layers of a pavement or roadway or sporting field.

B. Environmental/chemical testing is required for each source and of the same soil classification type (based on the unified soil classification system) of the import soil (fill).

C. In advance of hauling in and use of import soil (fill) Non-Profit Entity for each source of import soil (fill), shall provide the SAR group within City Public Works Department the original source of where the import soil (fill) is coming from, the name of the laboratory used to analyze the soils, and the date of chemical analysis. Laboratory results shall not be over 6 months old.

D. Non-Profit Entity shall provide chemical analytical results for each source and of the same soil classification type (based on the unified soil classification system) of import soil (fill) in accordance with the Recommended Fill Material Sampling Schedule stated in the Department of Toxic Substances Control (DTSC) Advisory Note for Clean Imported Material (as shown below). If Non-Profit Entity brings import soils from different sources, then the "Sample per Volume" count re-starts for each of different source of import soil (fill) (as shown below).

Import Fill Volumes (for each source of import soil (fill) and of the same soil classification type)	Samples Per Volume for each source of import soil (fill) and of the same soil classification type
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for the first 1,000 yards + 1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for the first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

E. Each source of import soil (fill), import bedding sand and import recycled backfill sand of the same type, shall be analyzed as a four-point composite. Each composite shall be analyzed for Total Petroleum Hydrocarbons-Gasoline/BTEX/MTBE (EPA Method 8015 mod/8021), TPH-Diesel/Motor Oil (EPA Method 8015 with silica gel cleanup), Volatile Organic Carbons VOC's (EPA Method 8260), Semi-Volatile Organic Carbons SVOC's (EPA Method 8270), Organochlorine Pesticides (EPA Method 8081), Polychlorinated Biphenyls (EPA Method 8082), Title 22 Metals (EPA Methods 6000/7000 Series), Asbestos (CARB Method 435), Chromium +6 (EPA Method 7199), and soluble Total Concentration Leaching Potential (TCLP) and Soluble Threshold Limit Concentration (STLC) metals (as warranted – 10x STLC & 20x TCLP).

F. Import soils (fill) has to meet both the engineering backfill criteria and the chemical criteria of these contract specifications.

G. Chemical Criteria: To be accepted, the chemical concentrations of the import soil (fill) has to be equal or less than the values set forth in the Regional Water Quality Control Board (RWQCB)'s Environmental Screening Levels (ESLs), Tier 1 levels. Soils (fill) with the following chemical levels shall not be accepted as import soils (fill).

1. Exceedance of the chemical values set forth in the Regional Water Quality Control Board (RWQCB)'s Environmental Screening Levels (ESLs), Tier 1 levels.

2. Lead that exceeds 80 mg/kg.

3. Serpentine (naturally occurring asbestos) and odorous soils

4. Petroleum Hydrocarbons or Oil and Grease of any type that exceed 100 mg/kg.

5. Asphalt, concrete, bentonite, bay mud, clay, bricks, cobblestones, rocks, rubble, scrap metal, railroad tracks and ties, debris, soils containing asbestos, imported contaminated soils, vegetation, wood, debris, slag, obstructions, and other organic, unsound, unsatisfactory, or deleterious matter.

H. Environmental/chemical testing is not required of the base and subbase layers for the following materials that are used to build a pavement or roadway or sporting field: Base rock, Class II Aggregate Base (AB), Class II Recycled Base, Crushed Aggregate Base (CAB), Crushed Miscellaneous base (CMB), Processed Miscellaneous Base (PMB), Recycled Aggregate, Aggregate Subbase (ASB), reclaimed/recycled asphalt concrete (AC), and drain/crushed rock.

I. Reclaimed/recycled asphalt concrete (AC) is acceptable for the base and subbase layers to build a pavement or roadway or sporting field.

J. Crushed concrete is acceptable for the base and subbase layers to build a pavement or roadway or sporting field.

K. Import material for backfill shall comply with the Section 714 Standard Specifications and Plans, Department of Public Works, City and County of San Francisco. The Standard Specifications and Standard Plans are accessible online at ; and the specifications of the Water Department for work under the jurisdiction of the SFPUC's Water Department.

L. The SAR group within City Public Works Department reserves the right to spot check and analyze the import soils (fill) as it deems necessary, including prior to it being brought on to the project site, even after the approval of the submittal of analytical results from Non-Profit Entity, as well as after it is brought onsite.

M. Should the analyses of the import soils (fill) test out to exceed the above criteria, then Non-Profit Entity shall be given a chance to re-sample, for re-analyses. Should the re-analyses import soils (fill) test out to exceed the above criteria, then Non-Profit Entity shall have to remove the import soils (fill) at its own expense and replace with clean import soil (fill). In such a case, Non-Profit Entity shall bear all the cost (including the City's cost) for re-analysis.

N. For recreation and park projects, and community/urban gardens, Non-Profit Entity shall install a visual barrier (such as a plastic orange snow fence) in all areas between the native fill, backfill from other areas of the site, and the import (soil) fill. Non-Profit Entity shall request the SAR group within City Public Works Department inspection of the visual barrier, and obtain their approval prior to Non-Profit Entity filling soil over it.

O. Non-Profit Entity shall request inspection of the subbase placement for proper grands and depths by the SAR group within City Public Works Department, and obtain their approval prior to Non-Profit Entity filling soil over it.

P. Analytical costs for imported fill (soil) shall be born by Non-Profit Entity.

Q. Non-Profit Entity shall furnish the above analytical results at least 10 working days prior to bringing the import soil (fill) into the Project Site. The acceptance of import soil (fill) will be made by the SAR group within City Public Works Department and will depend on the results of the analytical testing, backfill requirements of the Contract Documents regardless if it meets the testing requirements of Division 31 Earthwork and Section 31 23 33 Trenching and Backfilling.

R. Import soil (fill) shall not be brought on-site, prior to approval of the analytical results by the SAR group within City Public Works Department. Analytical results submitted shall be referenced on the import fill spreadsheet submittal.

S. Import soil (fill) shall be brought on-site at a rate where it is immediately used in the excavation. If the SAR group within City Public Works Department allows for import material to be stored overnight (only, and not longer) on site, then such import material shall be covered and placed at Non-Profit Entity's soils management yard, approved soil stockpile staging area or an area within the project alignment authorized by the SAR group within City Public Works Department. Stockpiles being stored overnight shall be completely covered with 10 mil HDPE plastic and braced (weighted or tied down) securely.

T. Import Fill Spreadsheet: As warranted, Non-Profit Entity shall submit five hardcopies or a digital copy of a monthly spreadsheet of all imported fill deposited at the Project Site to the SAR group within City Public Works Department. The spreadsheet shall include information on the project name, contract No., origin of import (street address, city), location of deposit (street address and depth range), quantity (cubic yards), soil type based on the unified soil classification system, the corresponding chemical, correspondent environmental analytical results submitted, truckers and trucking firm(s) used and trucking logs and invoices.

3.6 SECURING AREAS WITH EXPOSED, EXISTING SOIL

A. Wherever Construction Work exposes the existing soil or where existing soil is stockpiled, these areas shall be barricaded all around with continuous (no gaps greater than 4 inches) fencing (either metal wire or orange plastic), Triton barriers or other barricades at least 3 feet high. Non-Profit Entity shall ensure that barricades are installed taunt and secured against strong winds. Alternatively, the exposed, existing soil in excavation areas such as trenches, may be covered over with plates or other acceptable means. The intent is to secure the exposed, existing soil from public contact.

END OF SECTION

EXHIBIT 19

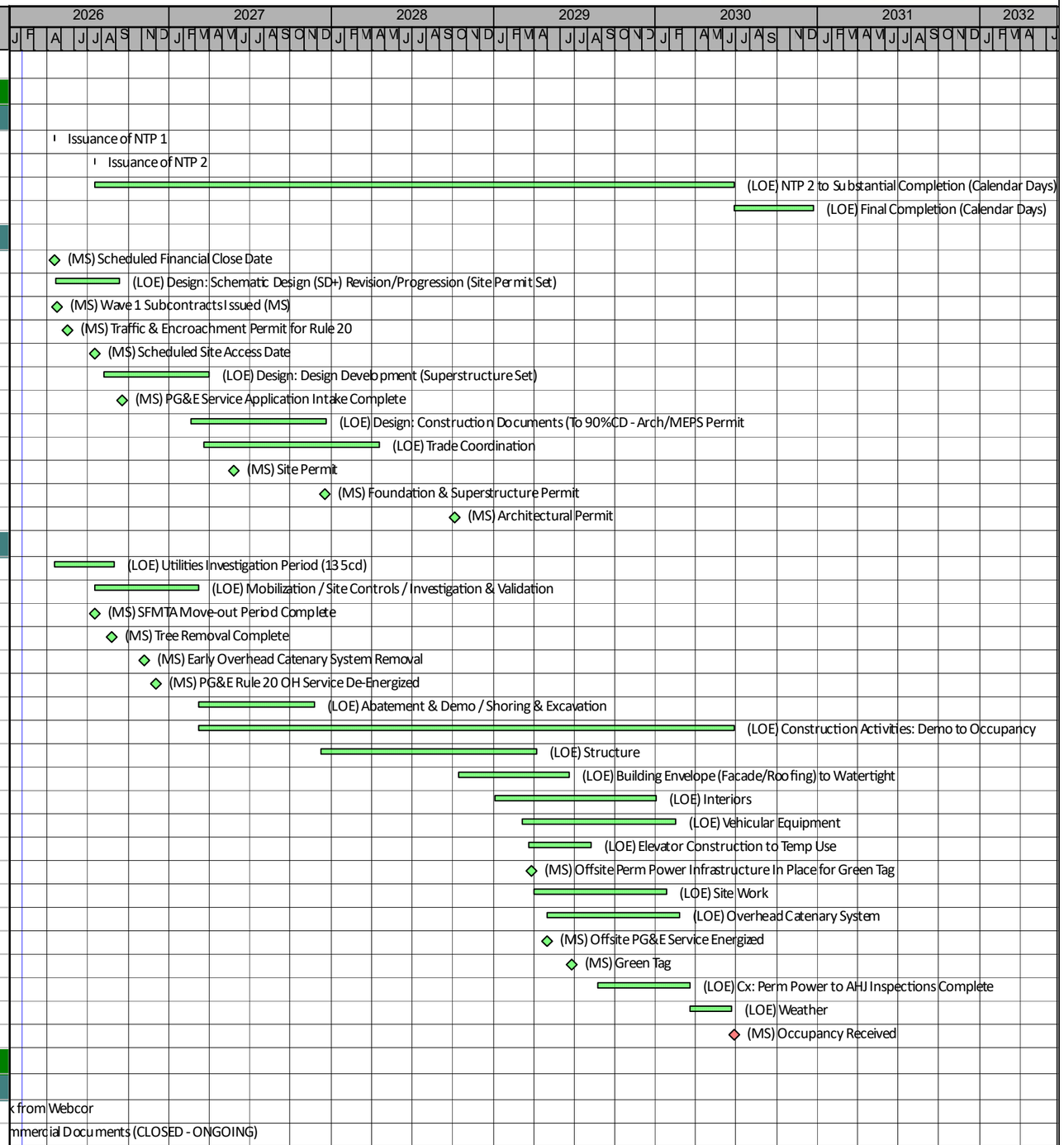
INITIAL SCHEDULE

[See attached]

Potrero Yard Modernization
Final Initial Schedule

WEBCOR

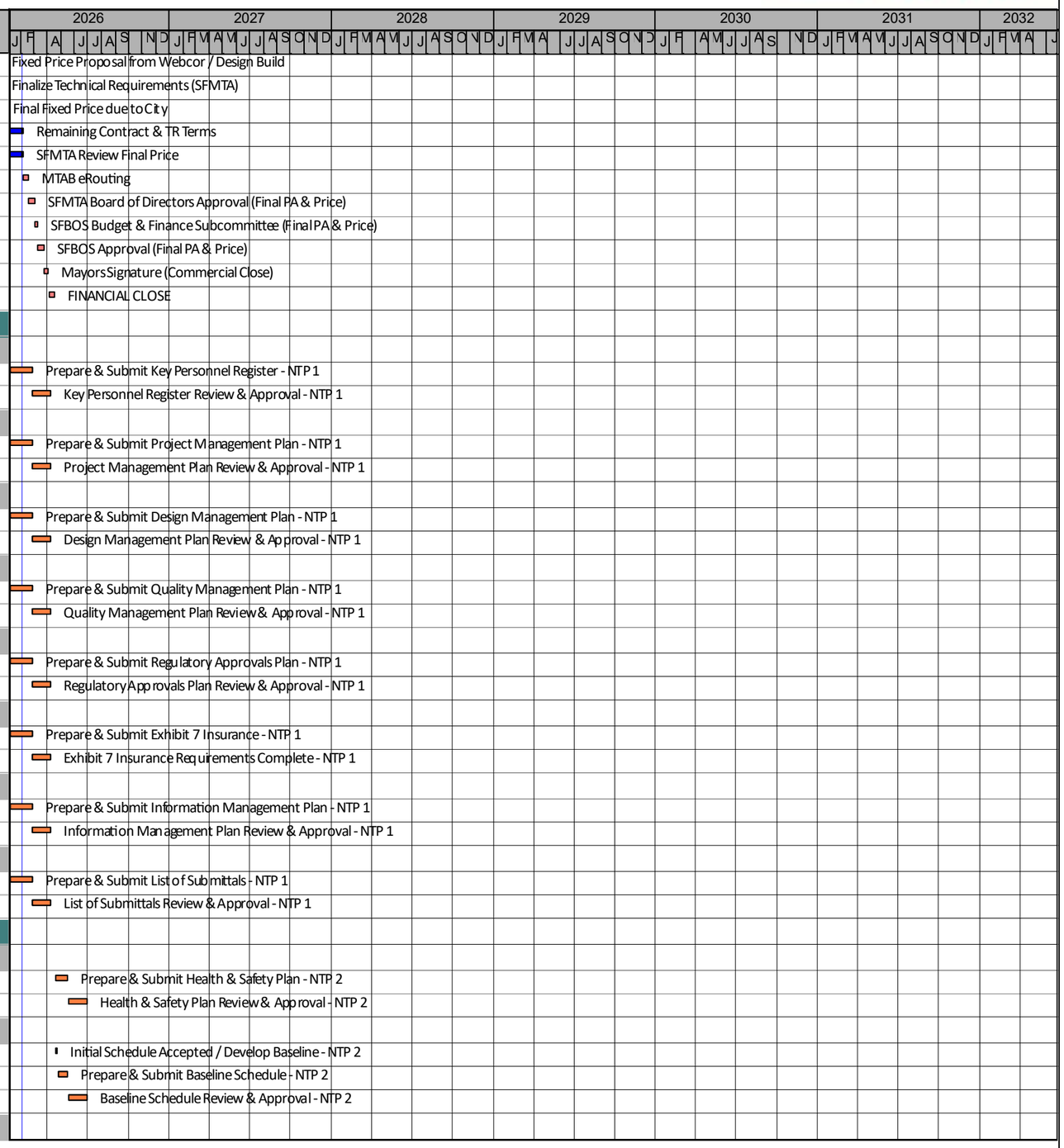
#	Activity Name	OD	Start	Finish
1	**Potrero Yard Modernization - Initial Schedule**	1413	Jan-13-25 A	Dec-23-30
2	**Summary**	1178	Apr-17-26	Dec-23-30
3	**Contract**	1712	Apr-17-26	Dec-23-30
4	Issuance of NTP 1	1	Apr-17-26	Apr-17-26
5	Issuance of NTP 2	1	Jul-16-26	Jul-16-26
6	(LOE) NTP 2 to Substantial Completion (Calendar Days)	1442	Jul-16-26	Jun-26-30
7	(LOE) Final Completion (Calendar Days)	180	Jun-27-30	Dec-23-30
8	**Preconstruction Summary**	622	Apr-17-26	Oct-05-28
9	(MS) Scheduled Financial Close Date	0		Apr-17-26
10	(LOE) Design: Schematic Design (SD+) Revision/Progression (Site Permit Set)	100	Apr-20-26	Sep-09-26
11	(MS) Wave 1 Subcontracts Issued (MS)	0		Apr-24-26
12	(MS) Traffic & Encroachment Permit for Rule 20	0		May-15-26
13	(MS) Scheduled Site Access Date	0		Jul-16-26
14	(LOE) Design: Design Development (Superstructure Set)	165	Aug-05-26	Apr-01-27
15	(MS) PG&E Service Application Intake Complete	0		Sep-15-26
16	(LOE) Design: Construction Documents (To 90%CD - Arch/MEPS Permit	212	Feb-19-27	Dec-20-27
17	(LOE) Trade Coordination	275	Mar-19-27	Apr-19-28
18	(MS) Site Permit	0		May-27-27
19	(MS) Foundation & Superstructure Permit	0		Dec-16-27
20	(MS) Architectural Permit	0		Oct-05-28
21	**Construction Summary**	1053	Apr-18-26	Jun-26-30
22	(LOE) Utilities Investigation Period (135cd)	135	Apr-18-26	Aug-30-26
23	(LOE) Mobilization / Site Controls / Investigation & Validation	161	Jul-16-26	Mar-08-27
24	(MS) SFMTA Move-out Period Complete	0		Jul-16-26
25	(MS) Tree Removal Complete	0		Aug-25-26
26	(MS) Early Overhead Catenary System Removal	0		Nov-06-26
27	(MS) PG&E Rule 20 OH Service De-Energized	0		Dec-01-26
28	(LOE) Abatement & Demo / Shoring & Excavation	183	Mar-09-27	Nov-23-27
29	(LOE) Construction Activities: Demo to Occupancy	831	Mar-09-27	Jun-26-30
30	(LOE) Structure	332	Dec-10-27	Apr-09-29
31	(LOE) Building Envelope (Facade/Roofing) to Watertight	170	Oct-13-28	Jun-19-29
32	(LOE) Interiors	250	Jan-05-29	Jan-03-30
33	(LOE) Vehicular Equipment	240	Mar-06-29	Feb-15-30
34	(LOE) Elevator Construction to Temp Use	100	Mar-20-29	Aug-08-29
35	(MS) Offsite Perm Power Infrastructure In Place for Green Tag	0	Mar-27-29	
36	(LOE) Site Work	205	Apr-03-29	Jan-25-30
37	(LOE) Overhead Catenary System	205	May-01-29	Feb-25-30
38	(MS) Offsite PG&E Service Energized	0		May-02-29
39	(MS) Green Tag	0		Jun-26-29
40	(LOE) Cx: Perm Power to AHJ Inspections Complete	140	Aug-23-29	Mar-18-30
41	(LOE) Weather	68	Mar-19-30	Jun-21-30
42	(MS) Occupancy Received	0		Jun-26-30*
43	**Preconstruction**	1058	Jan-13-25 A	Jul-25-29
44	**Contracting**	236	Jan-13-25 A	Apr-17-26
45	Initial Pricing Feedback from Webcor	34	Jan-13-25 A	Feb-28-25 A
46	Finalize Commercial Documents (CLOSED - ONGOING)	108	Jan-13-25 A	Jul-24-25 A



Potrero Yard Modernization
Final Initial Schedule

WEBCOR

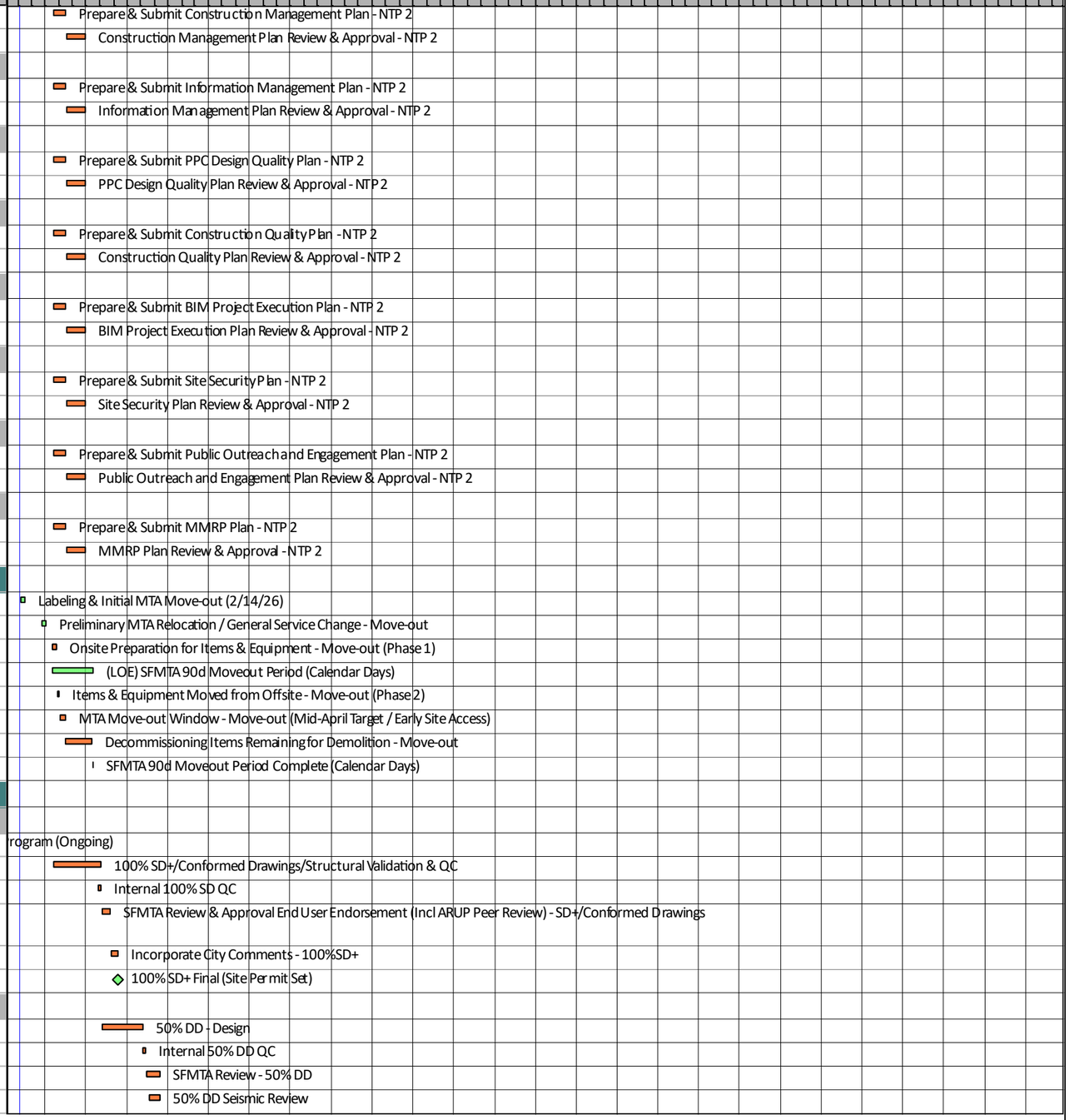
#	Activity Name	OD	Start	Finish
47	Fixed Price Proposal from Webcor / Design Build	56	May-02-25 A	Dec-12-25 A
48	Finalize Technical Requirements (SFMTA)	81	May-12-25 A	Dec-12-25 A
49	Final Fixed Price due to City	2	Dec-15-25 A	Dec-16-25 A
50	Remaining Contract & TR Terms	36	Dec-15-25 A	Feb-05-26
51	SFMTA Review Final Price	13	Dec-17-25 A	Feb-05-26
52	MTAB eRouting	8	Feb-06-26	Feb-18-26
53	SFMTA Board of Directors Approval (Final PA & Price)	9	Feb-19-26	Mar-03-26
54	SFBOS Budget & Finance Subcommittee (Final PA & Price)	6	Mar-04-26	Mar-11-26
55	SFBOS Approval (Final PA & Price)	10	Mar-11-26	Mar-24-26
56	Mayors Signature (Commercial Close)	8	Mar-25-26	Apr-03-26
57	FINANCIAL CLOSE	10	Apr-06-26	Apr-17-26
58	**NTP 1 Conditions**	65	Jan-08-26 A	Apr-09-26
59	**Key Personnel Register**	65	Jan-08-26 A	Apr-09-26
60	Prepare & Submit Key Personnel Register - NTP 1	20	Jan-08-26 A	Feb-26-26
61	Key Personnel Register Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
62	**Project Management Plan**	65	Jan-08-26 A	Apr-09-26
63	Prepare & Submit Project Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
64	Project Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
65	**Design Management Plan**	65	Jan-08-26 A	Apr-09-26
66	Prepare & Submit Design Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
67	Design Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
68	**Quality Management Plan**	65	Jan-08-26 A	Apr-09-26
69	Prepare & Submit Quality Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
70	Quality Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
71	**Regulatory Approval Plan**	65	Jan-08-26 A	Apr-09-26
72	Prepare & Submit Regulatory Approvals Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
73	Regulatory Approvals Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
74	**Exhibit 7 Insurance**	65	Jan-08-26 A	Apr-09-26
75	Prepare & Submit Exhibit 7 Insurance - NTP 1	20	Jan-08-26 A	Feb-26-26
76	Exhibit 7 Insurance Requirements Complete - NTP 1	30	Feb-27-26	Apr-09-26
77	**Information Management Plan**	65	Jan-08-26 A	Apr-09-26
78	Prepare & Submit Information Management Plan - NTP 1	20	Jan-08-26 A	Feb-26-26
79	Information Management Plan Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
80	**List of Submittals**	65	Jan-08-26 A	Apr-09-26
81	Prepare & Submit List of Submittals - NTP 1	20	Jan-08-26 A	Feb-26-26
82	List of Submittals Review & Approval - NTP 1	30	Feb-27-26	Apr-09-26
83	**NTP 2 Conditions**	50	Apr-20-26	Jun-29-26
84	**Health & Safety Plan**	50	Apr-20-26	Jun-29-26
85	Prepare & Submit Health & Safety Plan - NTP 2	20	Apr-20-26	May-15-26
86	Health & Safety Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
87	**Baseline Schedule**	50	Apr-20-26	Jun-29-26
88	Initial Schedule Accepted / Develop Baseline - NTP 2	5	Apr-20-26	Apr-24-26
89	Prepare & Submit Baseline Schedule - NTP 2	15	Apr-27-26	May-15-26
90	Baseline Schedule Review & Approval - NTP 2	30	May-18-26	Jun-29-26
91	**Construction Management Plan**	50	Apr-20-26	Jun-29-26



Potrero Yard Modernization
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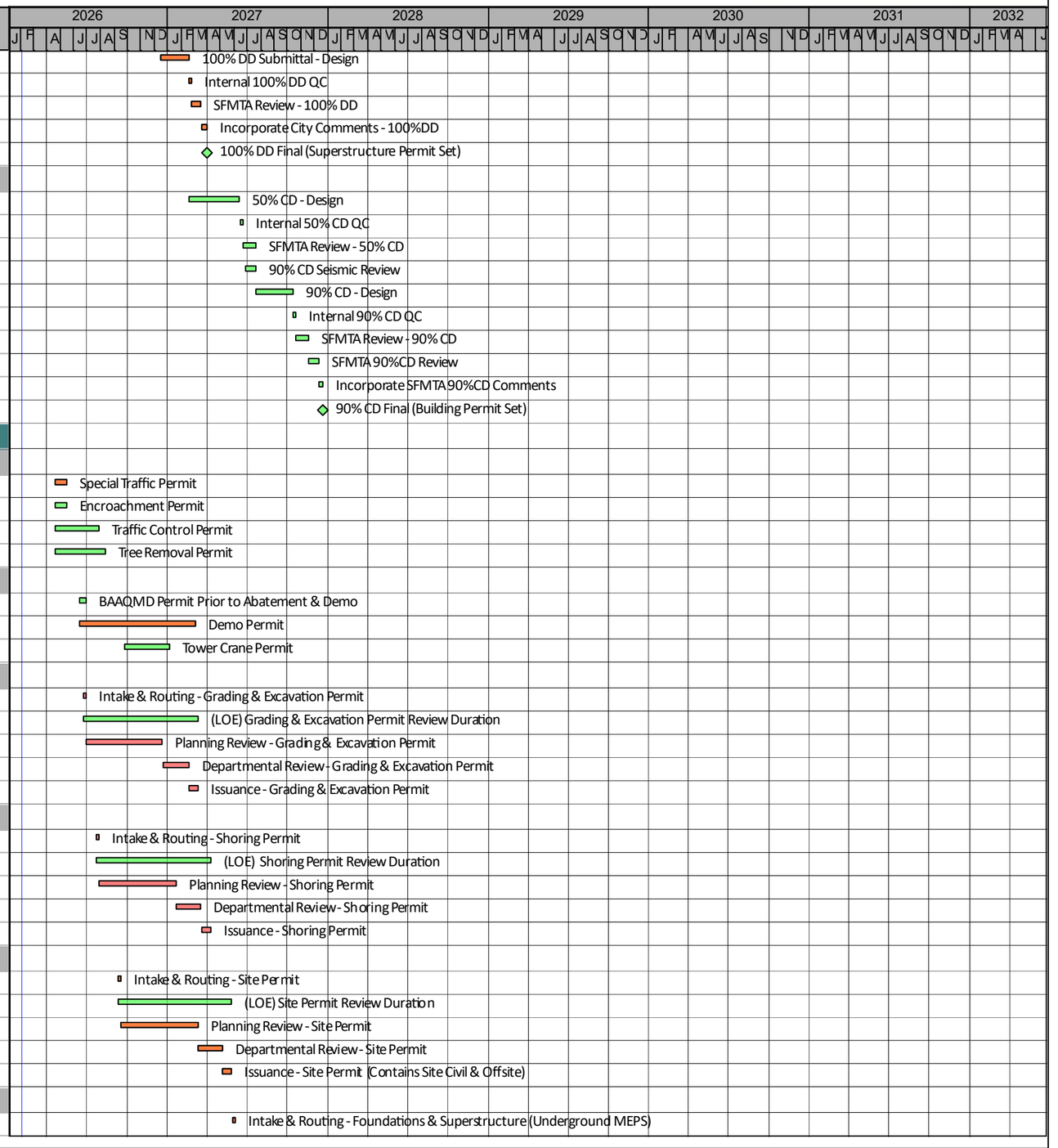
#	Activity Name	OD	Start	Finish
92	Prepare & Submit Construction Management Plan - NTP 2	20	Apr-20-26	May-15-26
93	Construction Management Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
94	**Information Management Plan**	50	Apr-20-26	Jun-29-26
95	Prepare & Submit Information Management Plan - NTP 2	20	Apr-20-26	May-15-26
96	Information Management Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
97	**PPC Design Quality Plan**	50	Apr-20-26	Jun-29-26
98	Prepare & Submit PPC Design Quality Plan - NTP 2	20	Apr-20-26	May-15-26
99	PPC Design Quality Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
100	**Construction Quality Plan**	50	Apr-20-26	Jun-29-26
101	Prepare & Submit Construction Quality Plan -NTP 2	20	Apr-20-26	May-15-26
102	Construction Quality Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
103	**BIM Project Execution Plan**	50	Apr-20-26	Jun-29-26
104	Prepare & Submit BIM Project Execution Plan - NTP 2	20	Apr-20-26	May-15-26
105	BIM Project Execution Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
106	**Site Security Plan**	50	Apr-20-26	Jun-29-26
107	Prepare & Submit Site Security Plan - NTP 2	20	Apr-20-26	May-15-26
108	Site Security Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
109	**Public Outreach and Engagement Plan**	50	Apr-20-26	Jun-29-26
110	Prepare & Submit Public Outreach and Engagement Plan - NTP 2	20	Apr-20-26	May-15-26
111	Public Outreach and Engagement Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
112	**MMRP Plan**	50	Apr-20-26	Jun-29-26
113	Prepare & Submit MMRP Plan - NTP 2	20	Apr-20-26	May-15-26
114	MMRP Plan Review & Approval - NTP 2	30	May-18-26	Jun-29-26
115	**SFMTA**	112	Feb-06-26	Jul-16-26
116	Labeling & Initial MTA Move-out (2/14/26)	9	Feb-06-26	Feb-14-26
117	Preliminary MTA Relocation / General Service Change - Move-out	10	Mar-25-26	Apr-03-26
118	Onsite Preparation for Items & Equipment - Move-out (Phase 1)	10	Apr-18-26	Apr-27-26
119	(LOE) SFMTA 90d Moveout Period (Calendar Days)	90	Apr-18-26	Jul-16-26
120	Items & Equipment Moved from Offsite - Move-out (Phase 2)	5	Apr-28-26	May-02-26
121	MTA Move-out Window - Move-out (Mid-April Target / Early Site Access)	10	May-04-26	May-15-26
122	Decommissioning Items Remaining for Demolition - Move-out	61	May-16-26	Jul-15-26
123	SFMTA 90d Moveout Period Complete (Calendar Days)	1	Jul-16-26	Jul-16-26
124	**Design**	658	Feb-10-25 A	Dec-20-27
125	**SD+/Program Validation/Value Engineering**	336	Feb-10-25 A	Sep-09-26
126	Value Engineering Program (Ongoing)	44	Feb-10-25 A	Apr-11-25 A
127	100% SD+/Conformed Drawings/Structural Validation & QC	75	Apr-20-26	Aug-04-26
128	Internal 100% SD QC	5	Jul-29-26	Aug-04-26
129	SFMTA Review & Approval End User Endorsement (Incl ARUP Peer Review) - SD+/Conformed Drawings	15	Aug-05-26	Aug-25-26
130	Incorporate City Comments - 100%SD+	10	Aug-26-26	Sep-09-26
131	100% SD+ Final (Site Permit Set)	0		Sep-09-26
132	**Design Development Phase**	165	Aug-05-26	Apr-01-27
133	50% DD - Design	66	Aug-05-26	Nov-05-26
134	Internal 50% DD QC	5	Nov-06-26	Nov-12-26
135	SFMTA Review - 50% DD	20	Nov-13-26	Dec-14-26
136	50% DD Seismic Review	16	Nov-19-26	Dec-14-26



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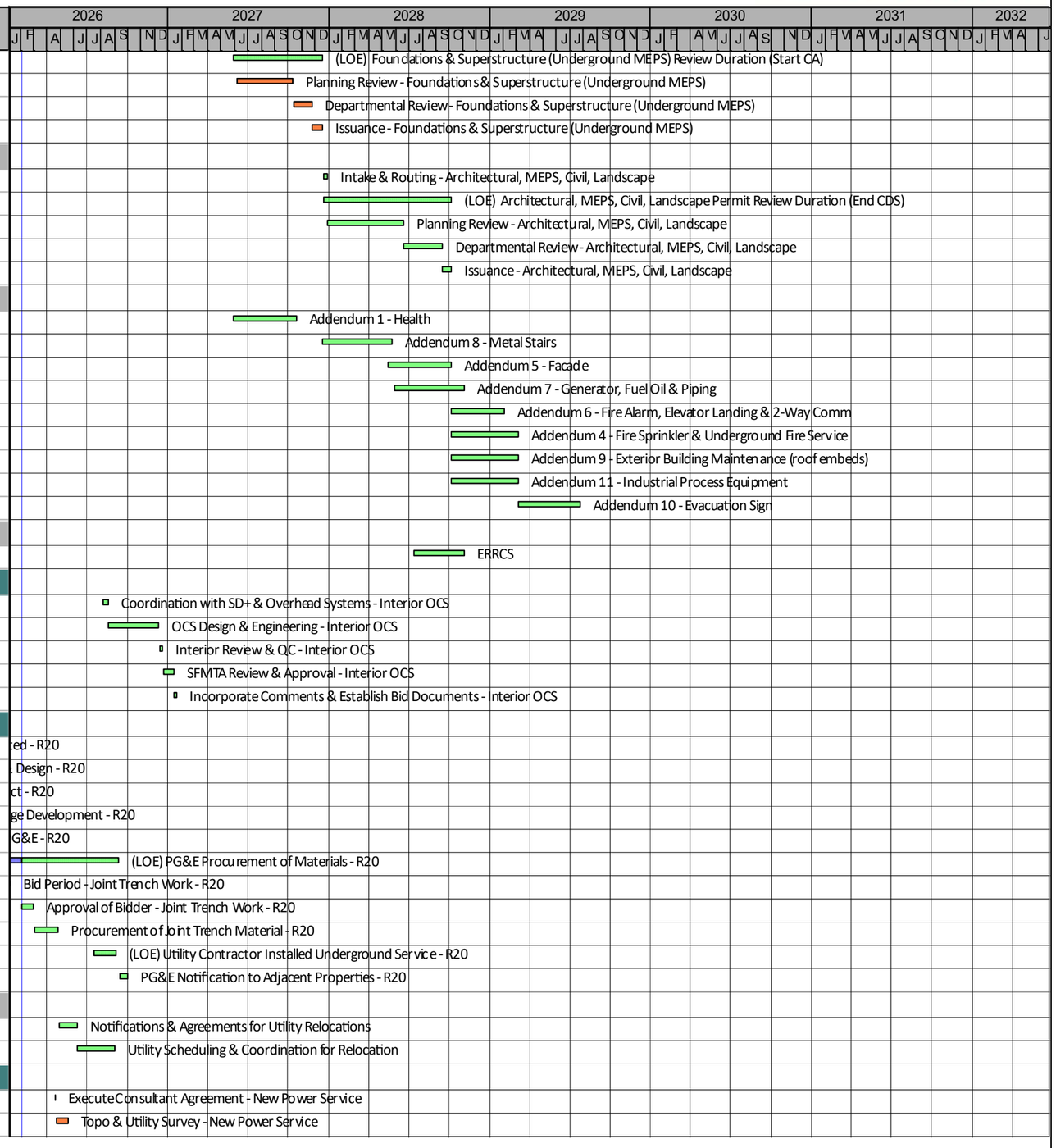
#	Activity Name	OD	Start	Finish
137	100% DD Submittal - Design	44	Dec-15-26	Feb-18-27
138	Internal 100% DD QC	5	Feb-19-27	Feb-25-27
139	SFMTA Review - 100% DD	15	Feb-26-27	Mar-18-27
140	Incorporate City Comments - 100%DD	10	Mar-19-27	Apr-01-27
141	100% DD Final (Superstructure Permit Set)	0		Apr-01-27
142	**Construction Documents Phase**	212	Feb-19-27	Dec-20-27
143	50% CD - Design	81	Feb-19-27	Jun-14-27
144	Internal 50% CD QC	5	Jun-15-27	Jun-21-27
145	SFMTA Review - 50% CD	20	Jun-22-27	Jul-20-27
146	90% CD Seismic Review	16	Jun-28-27	Jul-20-27
147	90% CD - Design	60	Jul-21-27	Oct-13-27
148	Internal 90% CD QC	5	Oct-14-27	Oct-20-27
149	SFMTA Review - 90% CD	20	Oct-21-27	Nov-17-27
150	SFMTA 90%CD Review	15	Nov-18-27	Dec-10-27
151	Incorporate SFMTA 90%CD Comments	6	Dec-13-27	Dec-20-27
152	90% CD Final (Building Permit Set)	0		Dec-20-27
153	**Permitting (Permit Strategy to be Confirmed with Designers & AHJ's)**	822	Apr-20-26	Jul-25-29
154	**SFDPW/BSM Permits**	80	Apr-20-26	Aug-11-26
155	Special Traffic Permit	20	Apr-20-26	May-15-26
156	Encroachment Permit	20	Apr-20-26	May-15-26
157	Traffic Control Permit	70	Apr-20-26	Jul-28-26
158	Tree Removal Permit	80	Apr-20-26	Aug-11-26
159	**Building Permits**	180	Jun-16-26	Mar-04-27
160	BAAQMD Permit Prior to Abatement & Demo	10	Jun-16-26	Jun-29-26
161	Demo Permit	180	Jun-16-26	Mar-04-27
162	Tower Crane Permit	70	Sep-24-26	Jan-06-27
163	**Grading & Excavation Permit**	180	Jun-23-26	Mar-11-27
164	Intake & Routing - Grading & Excavation Permit	5	Jun-23-26	Jun-29-26
165	(LOE) Grading & Excavation Permit Review Duration	180	Jun-23-26	Mar-11-27
166	Planning Review - Grading & Excavation Permit	120	Jun-30-26	Dec-18-26
167	Departmental Review - Grading & Excavation Permit	40	Dec-21-26	Feb-18-27
168	Issuance - Grading & Excavation Permit	15	Feb-19-27	Mar-11-27
169	**Shoring Permit**	180	Jul-22-26	Apr-08-27
170	Intake & Routing - Shoring Permit	5	Jul-22-26	Jul-28-26
171	(LOE) Shoring Permit Review Duration	180	Jul-22-26	Apr-08-27
172	Planning Review - Shoring Permit	120	Jul-29-26	Jan-20-27
173	Departmental Review - Shoring Permit	40	Jan-21-27	Mar-18-27
174	Issuance - Shoring Permit	15	Mar-19-27	Apr-08-27
175	**Site Permit (Permit Addendums Follow)**	180	Sep-10-26	May-27-27
176	Intake & Routing - Site Permit	5	Sep-10-26	Sep-16-26
177	(LOE) Site Permit Review Duration	180	Sep-10-26	May-27-27
178	Planning Review - Site Permit	120	Sep-17-26	Mar-11-27
179	Departmental Review - Site Permit	40	Mar-12-27	May-06-27
180	Issuance - Site Permit (Contains Site Civil & Offsite)	15	May-07-27	May-27-27
181	**Addendum 2 Substructure & Superstructure Permit**	140	May-28-27	Dec-16-27
182	Intake & Routing - Foundations & Superstructure (Underground MEPS)	5	May-28-27	Jun-04-27



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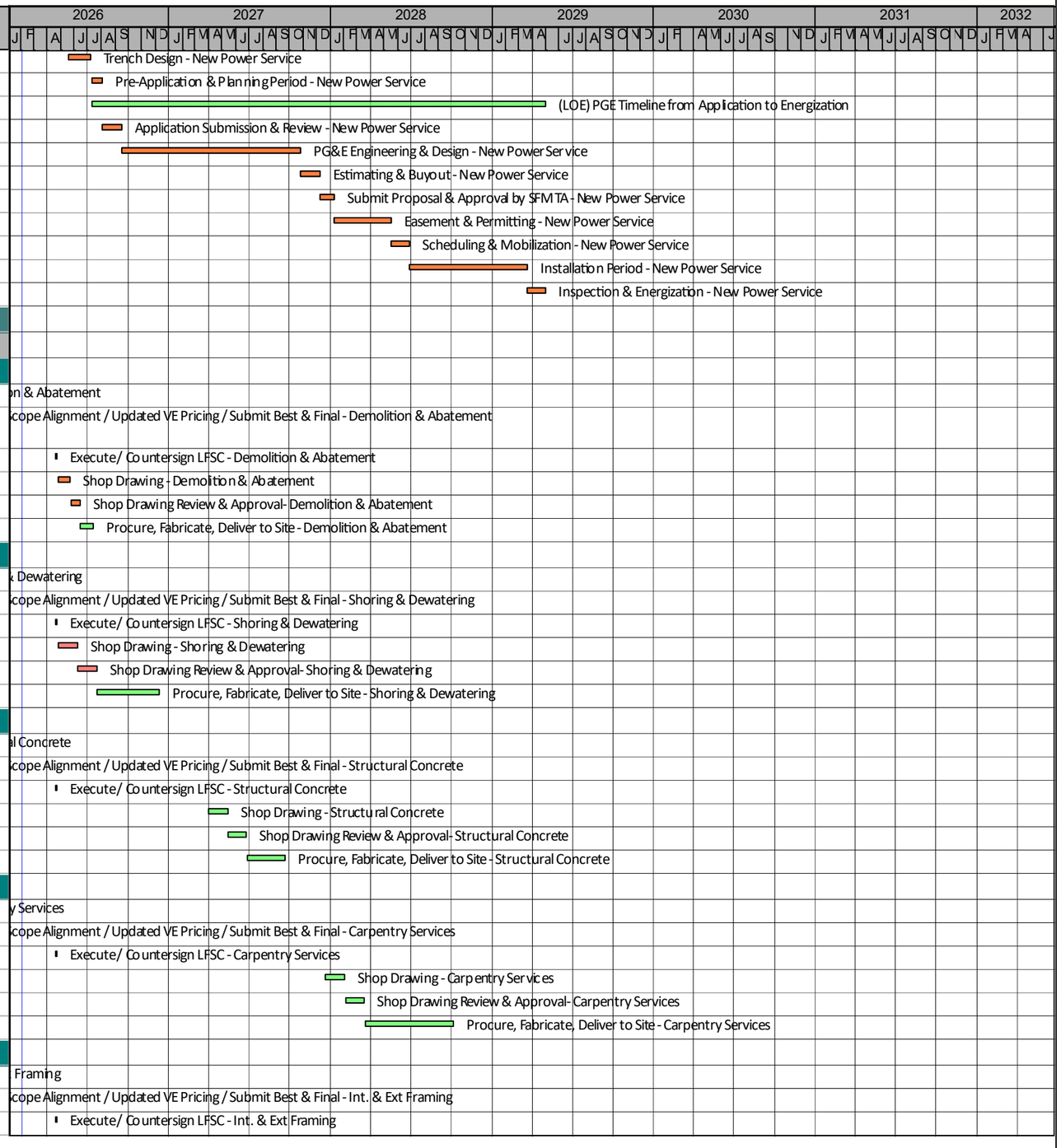
#	Activity Name	OD	Start	Finish
183	(LOE) Foundations & Superstructure (Underground MEPS) Review Duration (Start CA)	140	May-28-27	Dec-16-27
184	Planning Review - Foundations & Superstructure (Underground MEPS)	90	Jun-07-27	Oct-12-27
185	Departmental Review - Foundations & Superstructure (Underground MEPS)	30	Oct-13-27	Nov-23-27
186	Issuance - Foundations & Superstructure (Underground MEPS)	15	Nov-24-27	Dec-16-27
187	**Addendum 3 Architectural Permit (Includes MEPS)**	200	Dec-21-27	Oct-05-28
188	Intake & Routing - Architectural, MEPS, Civil, Landscape	5	Dec-21-27	Dec-29-27
189	(LOE) Architectural, MEPS, Civil, Landscape Permit Review Duration (End CDS)	200	Dec-21-27	Oct-05-28
190	Planning Review - Architectural, MEPS, Civil, Landscape	120	Dec-30-27	Jun-19-28
191	Departmental Review - Architectural, MEPS, Civil, Landscape	60	Jun-20-28	Sep-14-28
192	Issuance - Architectural, MEPS, Civil, Landscape	15	Sep-15-28	Oct-05-28
193	**Addendum**	542	May-28-27	Jul-25-29
194	Addendum 1 - Health	100	May-28-27	Oct-19-27
195	Addendum 8 - Metal Stairs	110	Dec-17-27	May-24-28
196	Addendum 5 - Facade	100	May-15-28	Oct-05-28
197	Addendum 7 - Generator, Fuel Oil & Piping	110	May-30-28	Nov-02-28
198	Addendum 6 - Fire Alarm, Elevator Landing & 2-Way Comm	80	Oct-06-28	Feb-02-29
199	Addendum 4 - Fire Sprinkler & Underground Fire Service	100	Oct-06-28	Mar-05-29
200	Addendum 9 - Exterior Building Maintenance (roof embeds)	100	Oct-06-28	Mar-05-29
201	Addendum 11 - Industrial Process Equipment	100	Oct-06-28	Mar-05-29
202	Addendum 10 - Evacuation Sign	100	Mar-06-29	Jul-25-29
203	**Delegated Design Permits**	80	Jul-13-28	Nov-02-28
204	ERRCS	80	Jul-13-28	Nov-02-28
205	**Interior OCS**	115	Aug-05-26	Jan-20-27
206	Coordination with SD+ & Overhead Systems - Interior OCS	10	Aug-05-26	Aug-18-26
207	OCS Design & Engineering - Interior OCS	80	Aug-19-26	Dec-11-26
208	Interior Review & QC - Interior OCS	5	Dec-14-26	Dec-18-26
209	SFMTA Review & Approval - Interior OCS	15	Dec-21-26	Jan-13-27
210	Incorporate Comments & Establish Bid Documents - Interior OCS	5	Jan-14-27	Jan-20-27
211	**PG&E Rule 20**	353	Jan-13-25 A	Oct-02-26
212	PG&E Application Generated - R20	0	Jan-13-25 A	
213	PG&E Study, Review & Design - R20	34	Jan-13-25 A	Feb-28-25 A
214	Execute PG&E Contract - R20	5	Mar-03-25 A	Mar-07-25 A
215	Giacolone Bid Package Development - R20	20	Mar-03-25 A	Mar-28-25 A
216	Submit Payment to PG&E - R20	5	Mar-10-25 A	Mar-14-25 A
217	(LOE) PG&E Procurement of Materials - R20	159	Mar-14-25 A	Sep-11-26
218	Bid Period - Joint Trench Work - R20	25	Dec-01-25 A	Jan-07-26 A
219	Approval of Bidder - Joint Trench Work - R20	20	Feb-02-26	Mar-02-26
220	Procurement of Joint Trench Material - R20	40	Mar-03-26	Apr-27-26
221	(LOE) Utility Contractor Installed Underground Service - R20	35	Jul-17-26	Sep-03-26
222	PG&E Notification to Adjacent Properties - R20	15	Sep-14-26	Oct-02-26
223	**Pole Mounted Utility Services**	90	Apr-28-26	Sep-02-26
224	Notifications & Agreements for Utility Relocations	30	Apr-28-26	Jun-09-26
225	Utility Scheduling & Coordination for Relocation	60	Jun-10-26	Sep-02-26
226	**PGE Application / New Perm Power Service**	764	Apr-20-26	May-02-29
227	Execute Consultant Agreement - New Power Service	2	Apr-20-26	Apr-21-26
228	Topo & Utility Survey - New Power Service	20	Apr-22-26	May-19-26



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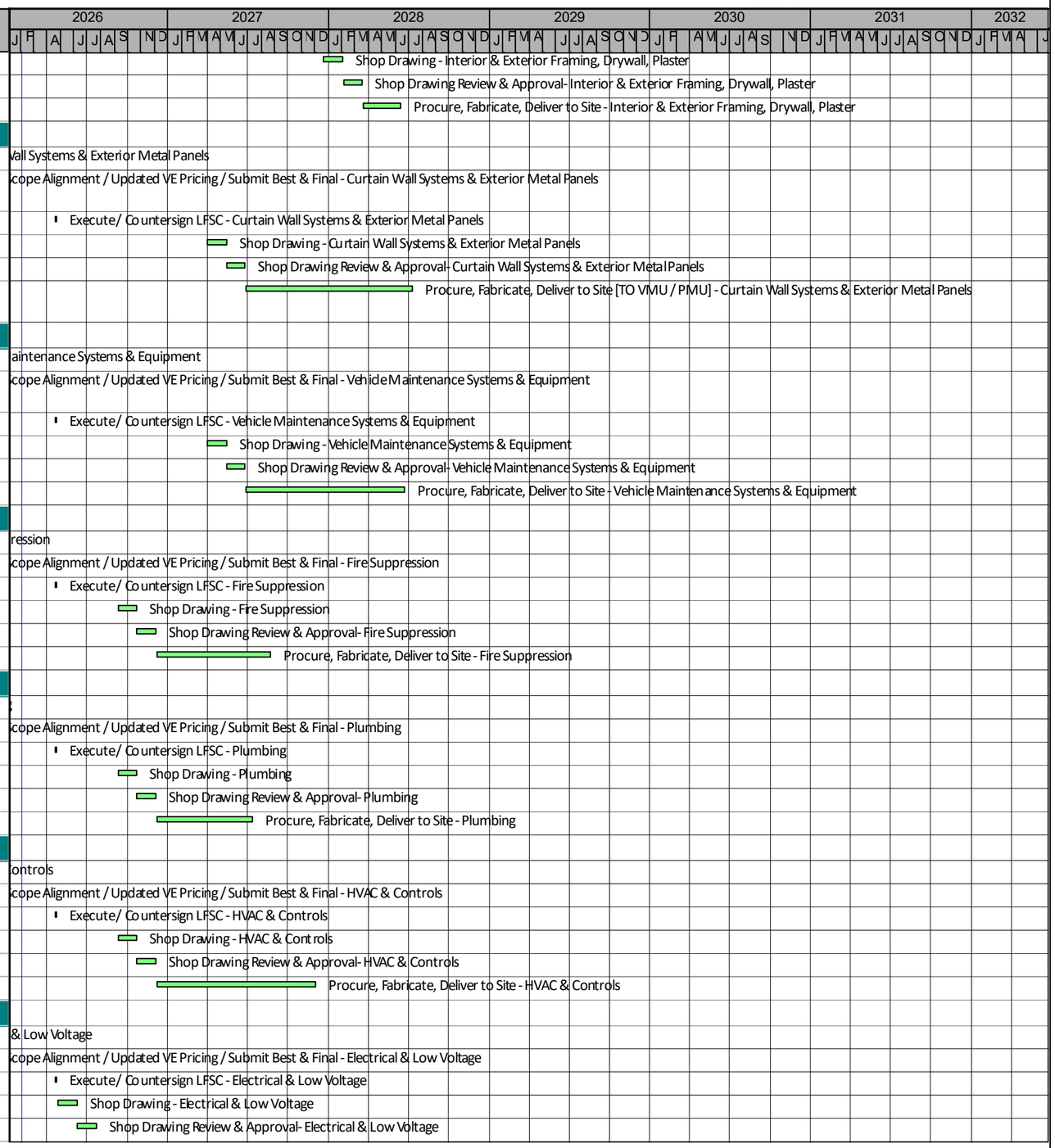
#	Activity Name	OD	Start	Finish
229	Trench Design - New Power Service	35	May-20-26	Jul-09-26
230	Pre-Application & Planning Period - New Power Service	17	Jul-10-26	Aug-03-26
231	(LOE) PGE Timeline from Application to Energization	707	Jul-10-26	May-02-29
232	Application Submission & Review - New Power Service	30	Aug-04-26	Sep-15-26
233	PG&E Engineering & Design - New Power Service	280	Sep-16-26	Oct-25-27
234	Estimating & Buyout - New Power Service	30	Oct-26-27	Dec-08-27
235	Submit Proposal & Approval by SFMTA - New Power Service	20	Dec-09-27	Jan-10-28
236	Easement & Permitting - New Power Service	90	Jan-11-28	May-16-28
237	Scheduling & Mobilization - New Power Service	30	May-17-28	Jun-28-28
238	Installation Period - New Power Service	180	Jun-29-28	Mar-21-29
239	Inspection & Energization - New Power Service	30	Mar-22-29	May-02-29
240	**Buyout & Procurement**	866	Jan-13-25 A	Oct-17-28
241	**Wave 1 Buyout - MEPS Best Value Core Trades (100% SD)**	866	Jan-13-25 A	Oct-17-28
242	**WP-01 Demolition & Abatement**	296	Jan-13-25 A	Jul-14-26
243	Initial Pricing - Demolition & Abatement	20	Jan-13-25 A	Feb-07-25 A
244	Scope Alignment / Updated VE Pricing / Submit Best & Final - Demolition & Abatement	101	Feb-10-25 A	Nov-26-25 A
245	Execute/ Countersign LFSC - Demolition & Abatement	5	Apr-20-26	Apr-24-26
246	Shop Drawing - Demolition & Abatement	20	Apr-27-26	May-22-26
247	Shop Drawing Review & Approval- Demolition & Abatement	15	May-26-26	Jun-15-26
248	Procure, Fabricate, Deliver to Site - Demolition & Abatement	20	Jun-16-26	Jul-14-26
249	**WP-03 Shoring & Dewatering**	401	Jan-13-25 A	Dec-11-26
250	Initial Pricing - Shoring & Dewatering	20	Jan-13-25 A	Feb-07-25 A
251	Scope Alignment / Updated VE Pricing / Submit Best & Final - Shoring & Dewatering	101	Feb-10-25 A	Nov-26-25 A
252	Execute/ Countersign LFSC - Shoring & Dewatering	5	Apr-20-26	Apr-24-26
253	Shop Drawing - Shoring & Dewatering	30	Apr-27-26	Jun-08-26
254	Shop Drawing Review & Approval- Shoring & Dewatering	30	Jun-09-26	Jul-21-26
255	Procure, Fabricate, Deliver to Site - Shoring & Dewatering	100	Jul-22-26	Dec-11-26
256	**WP-04 Structural Concrete**	596	Jan-13-25 A	Sep-21-27
257	Initial Pricing - Structural Concrete	20	Jan-13-25 A	Feb-07-25 A
258	Scope Alignment / Updated VE Pricing / Submit Best & Final - Structural Concrete	101	Feb-10-25 A	Nov-26-25 A
259	Execute/ Countersign LFSC - Structural Concrete	5	Apr-20-26	Apr-24-26
260	Shop Drawing - Structural Concrete	30	Apr-02-27	May-13-27
261	Shop Drawing Review & Approval- Structural Concrete	30	May-14-27	Jun-25-27
262	Procure, Fabricate, Deliver to Site - Structural Concrete	60	Jun-28-27	Sep-21-27
263	**WP-13 Carpentry Services [Millwork, Casework, DFH, Specialties]**	858	Jan-13-25 A	Oct-05-28
264	Initial Pricing - Carpentry Services	20	Jan-13-25 A	Feb-07-25 A
265	Scope Alignment / Updated VE Pricing / Submit Best & Final - Carpentry Services	101	Feb-10-25 A	Nov-26-25 A
266	Execute/ Countersign LFSC - Carpentry Services	5	Apr-20-26	Apr-24-26
267	Shop Drawing - Carpentry Services	30	Dec-21-27	Feb-03-28
268	Shop Drawing Review & Approval- Carpentry Services	30	Feb-04-28	Mar-17-28
269	Procure, Fabricate, Deliver to Site - Carpentry Services	140	Mar-20-28	Oct-05-28
270	**WP-16 Interior & Exterior Framing, Drywall, Plaster**	778	Jan-13-25 A	Jun-12-28
271	Initial Pricing - Int. & Ext Framing	20	Jan-13-25 A	Feb-07-25 A
272	Scope Alignment / Updated VE Pricing / Submit Best & Final - Int. & Ext Framing	101	Feb-10-25 A	Nov-26-25 A
273	Execute/ Countersign LFSC - Int. & Ext Framing	5	Apr-20-26	Apr-24-26



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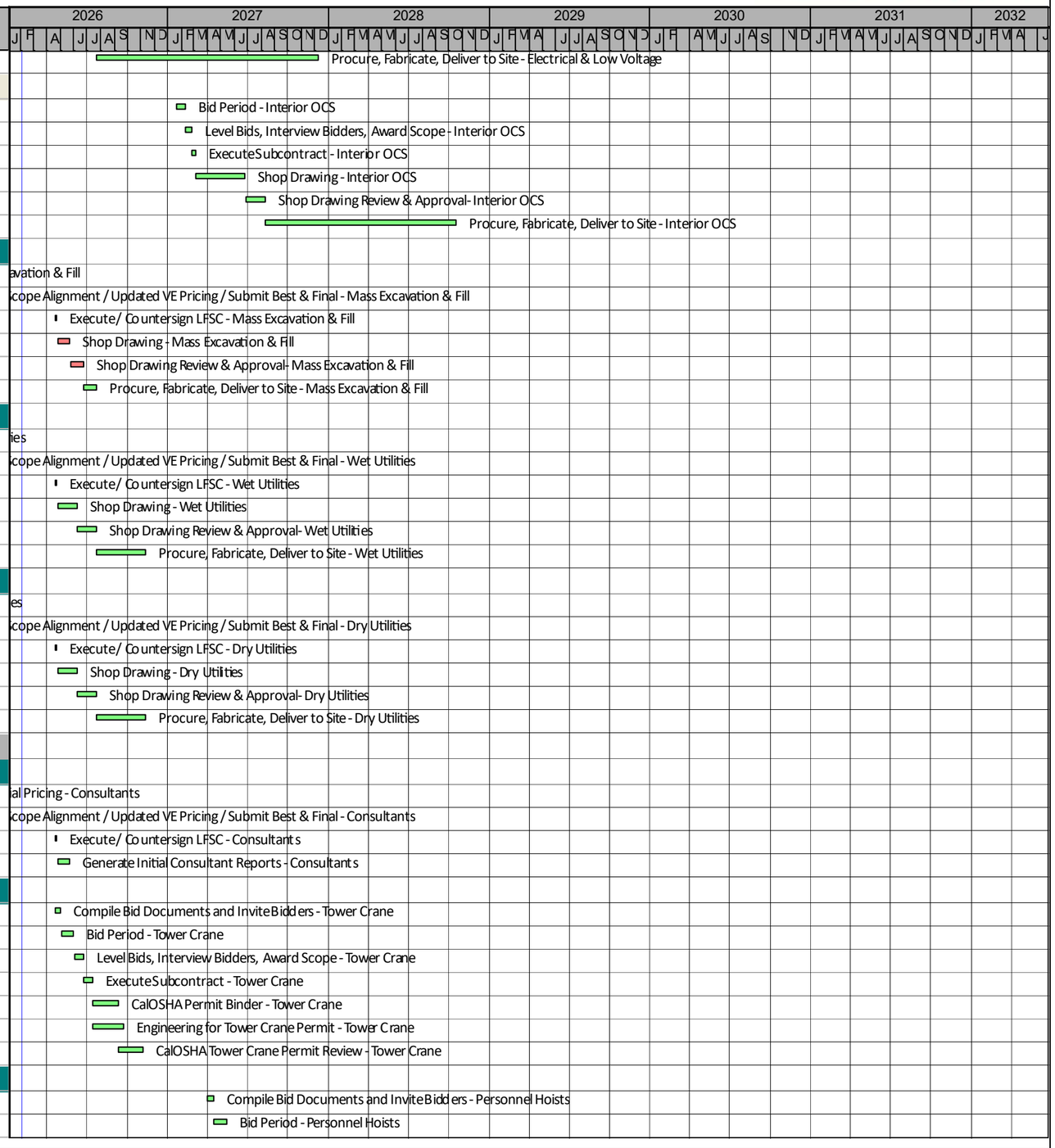
#	Activity Name	OD	Start	Finish
274	Shop Drawing - Interior & Exterior Framing, Drywall, Plaster	30	Dec-21-27	Feb-03-28
275	Shop Drawing Review & Approval- Interior & Exterior Framing, Drywall, Plaster	30	Feb-04-28	Mar-17-28
276	Procure, Fabricate, Deliver to Site - Interior & Exterior Framing, Drywall, Plaster	60	Mar-20-28	Jun-12-28
277	**WP-22 Curtain Wall Systems & Exterior Metal Panels**	796	Jan-13-25 A	Jul-10-28
278	Initial Pricing - Curtain Wall Systems & Exterior Metal Panels	20	Jan-13-25 A	Feb-07-25 A
279	Scope Alignment / Updated VE Pricing / Submit Best & Final - Curtain Wall Systems & Exterior Metal Panels	101	Feb-10-25 A	Nov-26-25 A
280	Execute/ Countersign LFSC - Curtain Wall Systems & Exterior Metal Panels	5	Apr-20-26	Apr-24-26
281	Shop Drawing - Curtain Wall Systems & Exterior Metal Panels	30	Apr-02-27	May-13-27
282	(LOE) Structure	30	May-14-27	Jun-25-27
283	Procure, Fabricate, Deliver to Site [TO VMU / PMU] - Curtain Wall Systems & Exterior Metal Panels	260	Jun-28-27	Jul-10-28
284	**WP-50 Vehicle Maintenance Systems & Equipment**	786	Jan-13-25 A	Jun-22-28
285	Initial Pricing - Vehicle Maintenance Systems & Equipment	20	Jan-13-25 A	Feb-07-25 A
286	Scope Alignment / Updated VE Pricing / Submit Best & Final - Vehicle Maintenance Systems & Equipment	101	Feb-10-25 A	Nov-26-25 A
287	Execute/ Countersign LFSC - Vehicle Maintenance Systems & Equipment	5	Apr-20-26	Apr-24-26
288	Shop Drawing - Vehicle Maintenance Systems & Equipment	30	Apr-02-27	May-13-27
289	Shop Drawing Review & Approval- Vehicle Maintenance Systems & Equipment	30	May-14-27	Jun-25-27
290	Procure, Fabricate, Deliver to Site - Vehicle Maintenance Systems & Equipment	250	Jun-28-27	Jun-22-28
291	**WP-53 Fire Suppression**	576	Jan-13-25 A	Aug-23-27
292	Initial Pricing - Fire Suppression	20	Jan-13-25 A	Feb-07-25 A
293	Scope Alignment / Updated VE Pricing / Submit Best & Final - Fire Suppression	101	Feb-10-25 A	Nov-26-25 A
294	Execute/ Countersign LFSC - Fire Suppression	5	Apr-20-26	Apr-24-26
295	Shop Drawing - Fire Suppression	30	Sep-10-26	Oct-21-26
296	Shop Drawing Review & Approval- Fire Suppression	30	Oct-22-26	Dec-04-26
297	Procure, Fabricate, Deliver to Site - Fire Suppression	180	Dec-07-26	Aug-23-27
298	**WP-54 Plumbing**	546	Jan-13-25 A	Jul-12-27
299	Initial Pricing - Plumbing	20	Jan-13-25 A	Feb-07-25 A
300	Scope Alignment / Updated VE Pricing / Submit Best & Final - Plumbing	101	Feb-10-25 A	Nov-26-25 A
301	Execute/ Countersign LFSC - Plumbing	5	Apr-20-26	Apr-24-26
302	Shop Drawing - Plumbing	30	Sep-10-26	Oct-21-26
303	Shop Drawing Review & Approval- Plumbing	30	Oct-22-26	Dec-04-26
304	Procure, Fabricate, Deliver to Site - Plumbing	150	Dec-07-26	Jul-12-27
305	**WP-56 HVAC & Controls**	646	Jan-13-25 A	Dec-02-27
306	Initial Pricing - HVAC & Controls	20	Jan-13-25 A	Feb-07-25 A
307	Scope Alignment / Updated VE Pricing / Submit Best & Final - HVAC & Controls	101	Feb-10-25 A	Nov-26-25 A
308	Execute/ Countersign LFSC - HVAC & Controls	5	Apr-20-26	Apr-24-26
309	Shop Drawing - HVAC & Controls	30	Sep-10-26	Oct-21-26
310	Shop Drawing Review & Approval- HVAC & Controls	30	Oct-22-26	Dec-04-26
311	Procure, Fabricate, Deliver to Site - HVAC & Controls	250	Dec-07-26	Dec-02-27
312	**WP-57 Electrical & Low Voltage**	866	Jan-13-25 A	Oct-17-28
313	Initial Pricing - Electrical & Low Voltage	20	Jan-13-25 A	Feb-07-25 A
314	Scope Alignment / Updated VE Pricing / Submit Best & Final - Electrical & Low Voltage	101	Feb-10-25 A	Nov-26-25 A
315	Execute/ Countersign LFSC - Electrical & Low Voltage	5	Apr-20-26	Apr-24-26
316	Shop Drawing - Electrical & Low Voltage	30	Apr-27-26	Jun-08-26
317	Shop Drawing Review & Approval- Electrical & Low Voltage	30	Jun-09-26	Jul-21-26



Potrero Yard Modernization
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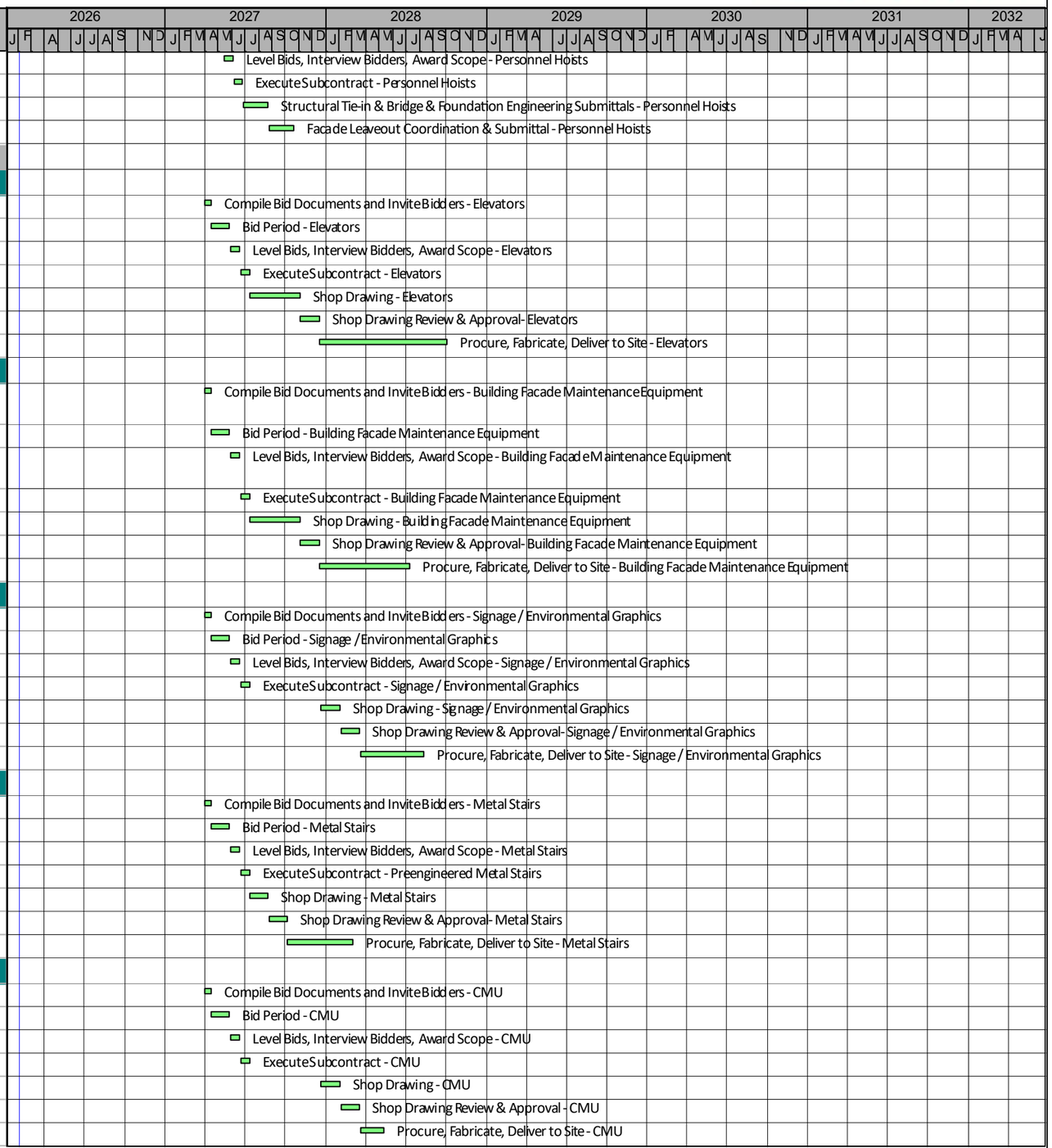
#	Activity Name	OD	Start	Finish
318	Procure, Fabricate, Deliver to Site - Electrical & Low Voltage	350	Jul-22-26	Dec-09-27
319	**Interior OCS**	440	Jan-21-27	Oct-17-28
320	Bid Period - Interior OCS	15	Jan-21-27	Feb-10-27
321	Level Bids, Interview Bidders, Award Scope - Interior OCS	10	Feb-11-27	Feb-25-27
322	ExecuteSubcontract - Interior OCS	5	Feb-26-27	Mar-04-27
323	Shop Drawing - Interior OCS	80	Mar-05-27	Jun-25-27
324	Shop Drawing Review & Approval- Interior OCS	30	Jun-28-27	Aug-09-27
325	Procure, Fabricate, Deliver to Site - Interior OCS	300	Aug-10-27	Oct-17-28
326	**WP-59 Mass Excavation & Fill**	301	Jan-13-25 A	Jul-21-26
327	Initial Pricing - Mass Excavation & Fill	20	Jan-13-25 A	Feb-07-25 A
328	Scope Alignment / Updated VE Pricing / Submit Best & Final - Mass Excavation & Fill	101	Feb-10-25 A	Nov-26-25 A
329	Execute/ Countersign LFSC - Mass Excavation & Fill	5	Apr-20-26	Apr-24-26
330	Shop Drawing - Mass Excavation & Fill	20	Apr-27-26	May-22-26
331	Shop Drawing Review & Approval- Mass Excavation & Fill	20	May-26-26	Jun-22-26
332	Procure, Fabricate, Deliver to Site - Mass Excavation & Fill	20	Jun-23-26	Jul-21-26
333	**WP-71 Wet Utilities**	381	Jan-13-25 A	Nov-11-26
334	Initial Pricing - Wet Utilities	20	Jan-13-25 A	Feb-07-25 A
335	Scope Alignment / Updated VE Pricing / Submit Best & Final - Wet Utilities	101	Feb-10-25 A	Nov-26-25 A
336	Execute/ Countersign LFSC - Wet Utilities	5	Apr-20-26	Apr-24-26
337	Shop Drawing - Wet Utilities	30	Apr-27-26	Jun-08-26
338	Shop Drawing Review & Approval- Wet Utilities	30	Jun-09-26	Jul-21-26
339	Procure, Fabricate, Deliver to Site - Wet Utilities	80	Jul-22-26	Nov-11-26
340	**WP-72 Dry Utilities**	381	Jan-13-25 A	Nov-11-26
341	Initial Pricing - Dry Utilities	20	Jan-13-25 A	Feb-07-25 A
342	Scope Alignment / Updated VE Pricing / Submit Best & Final - Dry Utilities	101	Feb-10-25 A	Nov-26-25 A
343	Execute/ Countersign LFSC - Dry Utilities	5	Apr-20-26	Apr-24-26
344	Shop Drawing - Dry Utilities	30	Apr-27-26	Jun-08-26
345	Shop Drawing Review & Approval- Dry Utilities	30	Jun-09-26	Jul-21-26
346	Procure, Fabricate, Deliver to Site - Dry Utilities	80	Jul-22-26	Nov-11-26
347	**Logistics/General Requirement Buyout**	519	Sep-29-25 A	Oct-19-27
348	**Consultant Buyout & Onboarding**	164	Sep-29-25 A	May-22-26
349	Initial Pricing - Consultants	20	Sep-29-25 A	Oct-24-25 A
350	Scope Alignment / Updated VE Pricing / Submit Best & Final - Consultants	23	Oct-27-25 A	Nov-26-25 A
351	Execute/ Countersign LFSC - Consultants	5	Apr-20-26	Apr-24-26
352	Generate Initial Consultant Reports - Consultants	20	Apr-27-26	May-22-26
353	**Tower Cranes**	140	Apr-20-26	Nov-04-26
354	Compile Bid Documents and InviteBidders - Tower Crane	10	Apr-20-26	May-01-26
355	Bid Period - Tower Crane	20	May-04-26	Jun-01-26
356	Level Bids, Interview Bidders, Award Scope - Tower Crane	15	Jun-02-26	Jun-22-26
357	ExecuteSubcontract - Tower Crane	15	Jun-23-26	Jul-14-26
358	CalOSHA Permit Binder - Tower Crane	40	Jul-15-26	Sep-09-26
359	Engineering for Tower Crane Permit - Tower Crane	50	Jul-15-26	Sep-23-26
360	CalOSHA Tower Crane Permit Review - Tower Crane	40	Sep-10-26	Nov-04-26
361	**Personnel Hoist**	140	Apr-02-27	Oct-19-27
362	Compile Bid Documents and InviteBidders - Personnel Hoists	10	Apr-02-27	Apr-15-27
363	Bid Period - Personnel Hoists	20	Apr-16-27	May-13-27



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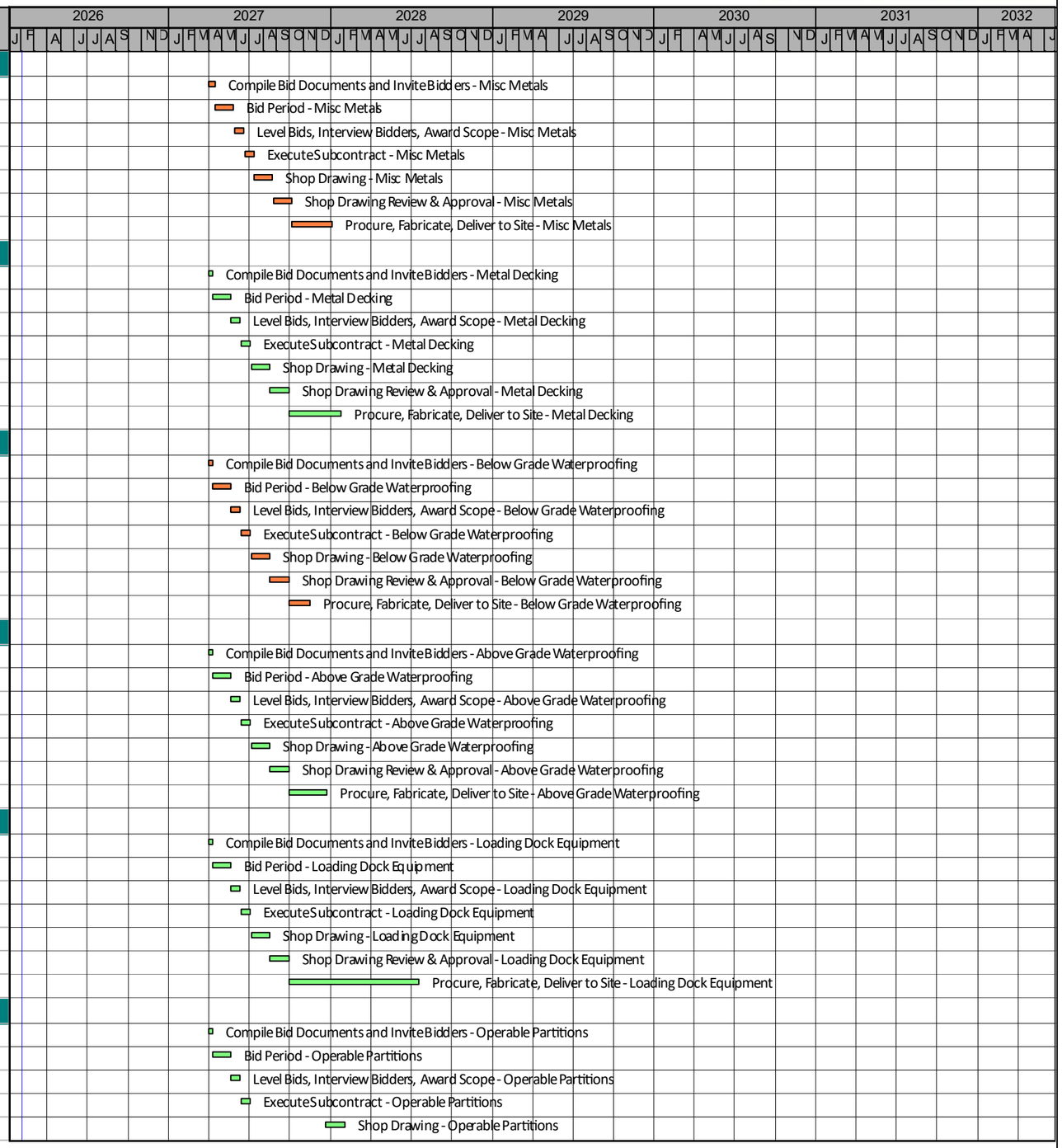
#	Activity Name	OD	Start	Finish
364	Level Bids, Interview Bidders, Award Scope - Personnel Hoists	15	May-14-27	Jun-04-27
365	Execute Subcontract - Personnel Hoists	15	Jun-07-27	Jun-25-27
366	Structural Tie-in & Bridge & Foundation Engineering Submittals - Personnel Hoists	40	Jun-28-27	Aug-23-27
367	Facade Leaveout Coordination & Submittal - Personnel Hoists	40	Aug-24-27	Oct-19-27
368	**Wave 2 Buyout**	380	Apr-02-27	Oct-03-28
369	**WP-52 Elevators**	380	Apr-02-27	Oct-03-28
370	Compile Bid Documents and Invite Bidders - Elevators	10	Apr-02-27	Apr-15-27
371	Bid Period - Elevators	30	Apr-16-27	May-27-27
372	Level Bids, Interview Bidders, Award Scope - Elevators	15	May-28-27	Jun-18-27
373	Execute Subcontract - Elevators	15	Jun-21-27	Jul-12-27
374	Shop Drawing - Elevators	80	Jul-13-27	Nov-02-27
375	Shop Drawing Review & Approval- Elevators	30	Nov-03-27	Dec-16-27
376	Procure, Fabricate, Deliver to Site - Elevators	200	Dec-17-27	Oct-03-28
377	**WP-46 Building Facade Maintenance Equipment**	320	Apr-02-27	Jul-10-28
378	Compile Bid Documents and Invite Bidders - Building Facade Maintenance Equipment	10	Apr-02-27	Apr-15-27
379	Bid Period - Building Facade Maintenance Equipment	30	Apr-16-27	May-27-27
380	Level Bids, Interview Bidders, Award Scope - Building Facade Maintenance Equipment	15	May-28-27	Jun-18-27
381	Execute Subcontract - Building Facade Maintenance Equipment	15	Jun-21-27	Jul-12-27
382	Shop Drawing - Building Facade Maintenance Equipment	80	Jul-13-27	Nov-02-27
383	Shop Drawing Review & Approval- Building Facade Maintenance Equipment	30	Nov-03-27	Dec-16-27
384	Procure, Fabricate, Deliver to Site - Building Facade Maintenance Equipment	140	Dec-17-27	Jul-10-28
385	**WP-39 Signage / Environmental Graphics**	342	Apr-02-27	Aug-09-28
386	Compile Bid Documents and Invite Bidders - Signage / Environmental Graphics	10	Apr-02-27	Apr-15-27
387	Bid Period - Signage / Environmental Graphics	30	Apr-16-27	May-27-27
388	Level Bids, Interview Bidders, Award Scope - Signage / Environmental Graphics	15	May-28-27	Jun-18-27
389	Execute Subcontract - Signage / Environmental Graphics	15	Jun-21-27	Jul-12-27
390	Shop Drawing - Signage / Environmental Graphics	30	Dec-21-27	Feb-03-28
391	Shop Drawing Review & Approval- Signage / Environmental Graphics	30	Feb-04-28	Mar-17-28
392	Procure, Fabricate, Deliver to Site - Signage / Environmental Graphics	100	Mar-20-28	Aug-09-28
393	**WP-10 Preengineered Metal Stairs**	230	Apr-02-27	Mar-01-28
394	Compile Bid Documents and Invite Bidders - Metal Stairs	10	Apr-02-27	Apr-15-27
395	Bid Period - Metal Stairs	30	Apr-16-27	May-27-27
396	Level Bids, Interview Bidders, Award Scope - Metal Stairs	15	May-28-27	Jun-18-27
397	Execute Subcontract - Preengineered Metal Stairs	15	Jun-21-27	Jul-12-27
398	Shop Drawing - Metal Stairs	30	Jul-13-27	Aug-23-27
399	Shop Drawing Review & Approval- Metal Stairs	30	Aug-24-27	Oct-05-27
400	Procure, Fabricate, Deliver to Site - Metal Stairs	100	Oct-06-27	Mar-01-28
401	**WP-07 CMU**	282	Apr-02-27	May-12-28
402	Compile Bid Documents and Invite Bidders - CMU	10	Apr-02-27	Apr-15-27
403	Bid Period - CMU	30	Apr-16-27	May-27-27
404	Level Bids, Interview Bidders, Award Scope - CMU	15	May-28-27	Jun-18-27
405	Execute Subcontract - CMU	15	Jun-21-27	Jul-12-27
406	Shop Drawing - CMU	30	Dec-21-27	Feb-03-28
407	Shop Drawing Review & Approval - CMU	30	Feb-04-28	Mar-17-28
408	Procure, Fabricate, Deliver to Site - CMU	40	Mar-20-28	May-12-28



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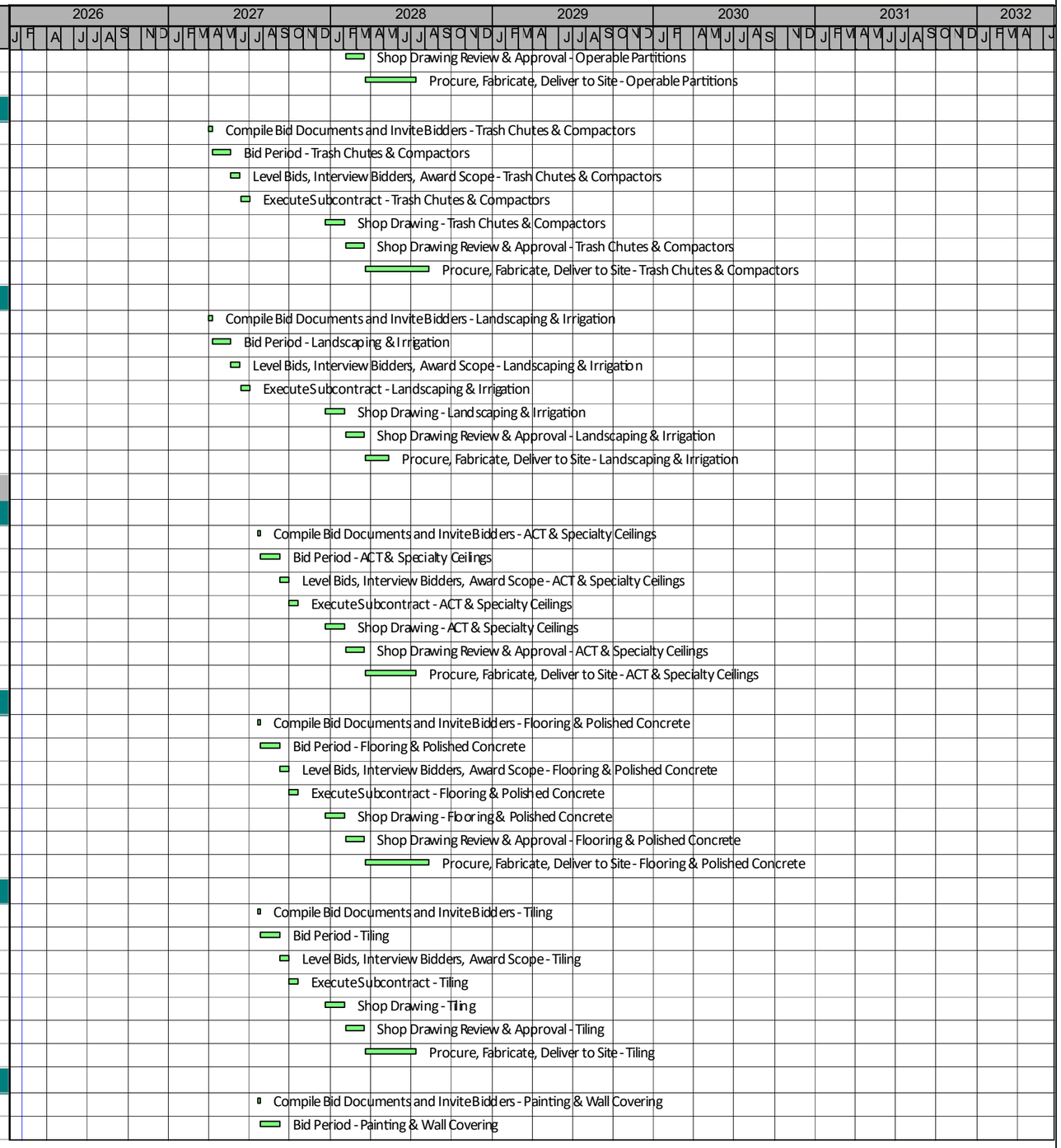
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409	**WP-09 Misc. Metals**	190	Apr-02-27	Jan-04-28
410	Compile Bid Documents and Invite Bidders - Misc Metals	10	Apr-02-27	Apr-15-27
411	Bid Period - Misc Metals	30	Apr-16-27	May-27-27
412	Level Bids, Interview Bidders, Award Scope - Misc Metals	15	May-28-27	Jun-18-27
413	Execute Subcontract - Misc Metals	15	Jun-21-27	Jul-12-27
414	Shop Drawing - Misc Metals	30	Jul-13-27	Aug-23-27
415	Shop Drawing Review & Approval - Misc Metals	30	Aug-24-27	Oct-05-27
416	Procure, Fabricate, Deliver to Site - Misc Metals	60	Oct-06-27	Jan-04-28
417	**WP-12 Metal Decking**	205	Apr-02-27	Jan-25-28
418	Compile Bid Documents and Invite Bidders - Metal Decking	5	Apr-02-27	Apr-08-27
419	Bid Period - Metal Decking	30	Apr-09-27	May-20-27
420	Level Bids, Interview Bidders, Award Scope - Metal Decking	15	May-21-27	Jun-11-27
421	Execute Subcontract - Metal Decking	15	Jun-14-27	Jul-02-27
422	Shop Drawing - Metal Decking	30	Jul-06-27	Aug-16-27
423	Shop Drawing Review & Approval - Metal Decking	30	Aug-17-27	Sep-28-27
424	Procure, Fabricate, Deliver to Site - Metal Decking	80	Sep-29-27	Jan-25-28
425	**WP-18 Below Grade Waterproofing**	160	Apr-02-27	Nov-16-27
426	Compile Bid Documents and Invite Bidders - Below Grade Waterproofing	5	Apr-02-27	Apr-08-27
427	Bid Period - Below Grade Waterproofing	30	Apr-09-27	May-20-27
428	Level Bids, Interview Bidders, Award Scope - Below Grade Waterproofing	15	May-21-27	Jun-11-27
429	Execute Subcontract - Below Grade Waterproofing	15	Jun-14-27	Jul-02-27
430	Shop Drawing - Below Grade Waterproofing	30	Jul-06-27	Aug-16-27
431	Shop Drawing Review & Approval - Below Grade Waterproofing	30	Aug-17-27	Sep-28-27
432	Procure, Fabricate, Deliver to Site - Below Grade Waterproofing	35	Sep-29-27	Nov-16-27
433	**WP-19 Above Grade Waterproofing**	185	Apr-02-27	Dec-23-27
434	Compile Bid Documents and Invite Bidders - Above Grade Waterproofing	5	Apr-02-27	Apr-08-27
435	Bid Period - Above Grade Waterproofing	30	Apr-09-27	May-20-27
436	Level Bids, Interview Bidders, Award Scope - Above Grade Waterproofing	15	May-21-27	Jun-11-27
437	Execute Subcontract - Above Grade Waterproofing	15	Jun-14-27	Jul-02-27
438	Shop Drawing - Above Grade Waterproofing	30	Jul-06-27	Aug-16-27
439	Shop Drawing Review & Approval - Above Grade Waterproofing	30	Aug-17-27	Sep-28-27
440	Procure, Fabricate, Deliver to Site - Above Grade Waterproofing	60	Sep-29-27	Dec-23-27
441	**WP-43 Loading Dock Equipment**	325	Apr-02-27	Jul-17-28
442	Compile Bid Documents and Invite Bidders - Loading Dock Equipment	5	Apr-02-27	Apr-08-27
443	Bid Period - Loading Dock Equipment	30	Apr-09-27	May-20-27
444	Level Bids, Interview Bidders, Award Scope - Loading Dock Equipment	15	May-21-27	Jun-11-27
445	Execute Subcontract - Loading Dock Equipment	15	Jun-14-27	Jul-02-27
446	Shop Drawing - Loading Dock Equipment	30	Jul-06-27	Aug-16-27
447	Shop Drawing Review & Approval - Loading Dock Equipment	30	Aug-17-27	Sep-28-27
448	Procure, Fabricate, Deliver to Site - Loading Dock Equipment	200	Sep-29-27	Jul-17-28
449	**WP-45 Operable Partitions * move to wave 3**	322	Apr-02-27	Jul-12-28
450	Compile Bid Documents and Invite Bidders - Operable Partitions	5	Apr-02-27	Apr-08-27
451	Bid Period - Operable Partitions	30	Apr-09-27	May-20-27
452	Level Bids, Interview Bidders, Award Scope - Operable Partitions	15	May-21-27	Jun-11-27
453	Execute Subcontract - Operable Partitions	15	Jun-14-27	Jul-02-27
454	Shop Drawing - Operable Partitions	30	Dec-21-27	Feb-03-28



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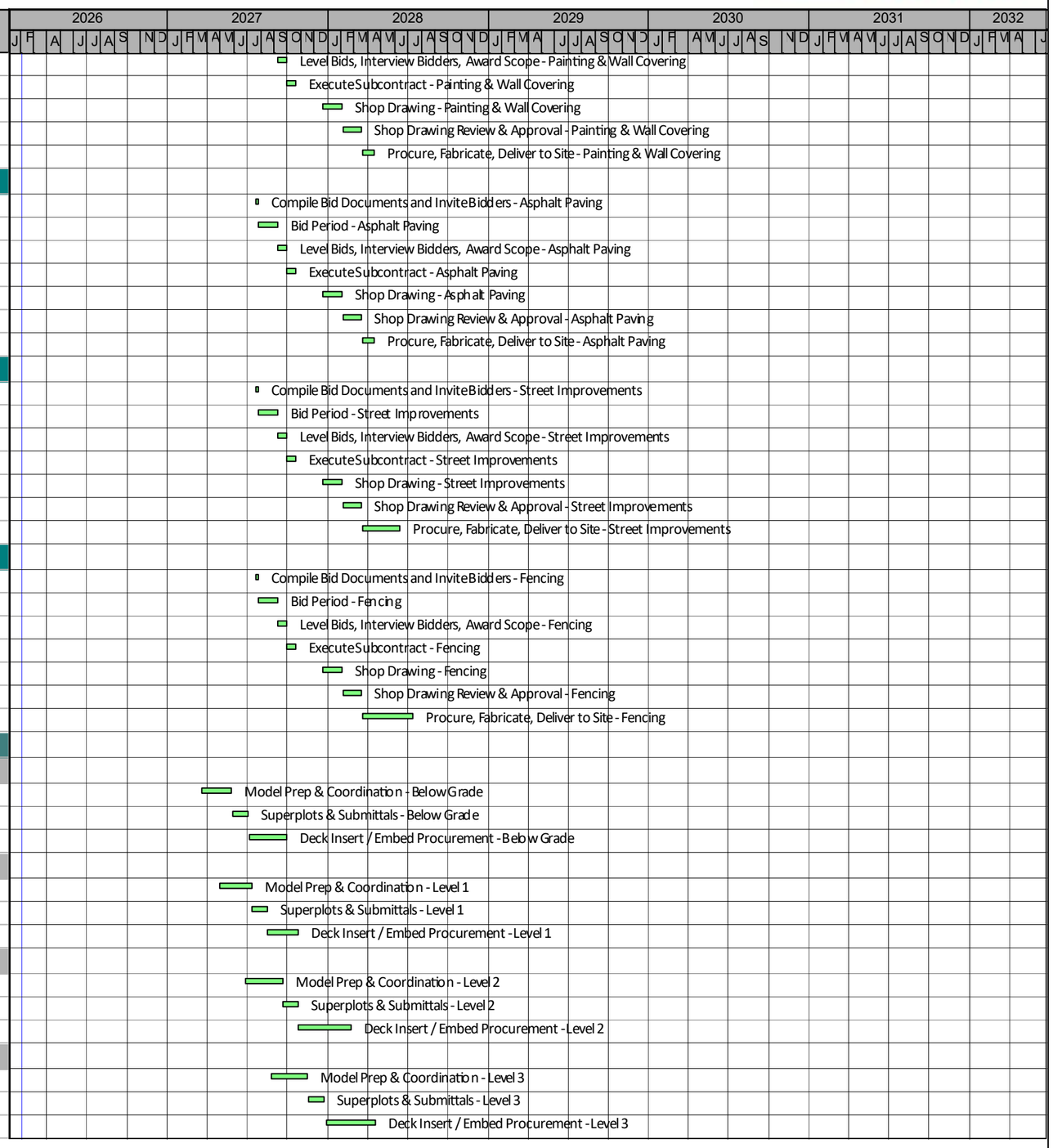
#	Activity Name	OD	Start	Finish
455	Shop Drawing Review & Approval - Operable Partitions	30	Feb-04-28	Mar-17-28
456	Procure, Fabricate, Deliver to Site - Operable Partitions	80	Mar-20-28	Jul-12-28
457	**WP-58 Trash Chutes & Compactors**	342	Apr-02-27	Aug-09-28
458	Compile Bid Documents and Invite Bidders - Trash Chutes & Compactors	5	Apr-02-27	Apr-08-27
459	Bid Period - Trash Chutes & Compactors	30	Apr-09-27	May-20-27
460	Level Bids, Interview Bidders, Award Scope - Trash Chutes & Compactors	15	May-21-27	Jun-11-27
461	Execute Subcontract - Trash Chutes & Compactors	15	Jun-14-27	Jul-02-27
462	Shop Drawing - Trash Chutes & Compactors	30	Dec-21-27	Feb-03-28
463	Shop Drawing Review & Approval - Trash Chutes & Compactors	30	Feb-04-28	Mar-17-28
464	Procure, Fabricate, Deliver to Site - Trash Chutes & Compactors	100	Mar-20-28	Aug-09-28
465	**WP-66 Landscaping & Irrigation * move to wave 3**	282	Apr-02-27	May-12-28
466	Compile Bid Documents and Invite Bidders - Landscaping & Irrigation	5	Apr-02-27	Apr-08-27
467	Bid Period - Landscaping & Irrigation	30	Apr-09-27	May-20-27
468	Level Bids, Interview Bidders, Award Scope - Landscaping & Irrigation	15	May-21-27	Jun-11-27
469	Execute Subcontract - Landscaping & Irrigation	15	Jun-14-27	Jul-02-27
470	Shop Drawing - Landscaping & Irrigation	30	Dec-21-27	Feb-03-28
471	Shop Drawing Review & Approval - Landscaping & Irrigation	30	Feb-04-28	Mar-17-28
472	Procure, Fabricate, Deliver to Site - Landscaping & Irrigation	40	Mar-20-28	May-12-28
473	**Wave 3 Buyout**	266	Jul-21-27	Aug-09-28
474	**WP-32 ACT & Specialty Ceilings**	246	Jul-21-27	Jul-12-28
475	Compile Bid Documents and Invite Bidders - ACT & Specialty Ceilings	5	Jul-21-27	Jul-27-27
476	Bid Period - ACT & Specialty Ceilings	30	Jul-28-27	Sep-08-27
477	Level Bids, Interview Bidders, Award Scope - ACT & Specialty Ceilings	15	Sep-09-27	Sep-29-27
478	Execute Subcontract - ACT & Specialty Ceilings	15	Sep-30-27	Oct-20-27
479	Shop Drawing - ACT & Specialty Ceilings	30	Dec-21-27	Feb-03-28
480	Shop Drawing Review & Approval - ACT & Specialty Ceilings	30	Feb-04-28	Mar-17-28
481	Procure, Fabricate, Deliver to Site - ACT & Specialty Ceilings	80	Mar-20-28	Jul-12-28
482	**WP-33 Flooring & Polished Concrete**	266	Jul-21-27	Aug-09-28
483	Compile Bid Documents and Invite Bidders - Flooring & Polished Concrete	5	Jul-21-27	Jul-27-27
484	Bid Period - Flooring & Polished Concrete	30	Jul-28-27	Sep-08-27
485	Level Bids, Interview Bidders, Award Scope - Flooring & Polished Concrete	15	Sep-09-27	Sep-29-27
486	Execute Subcontract - Flooring & Polished Concrete	15	Sep-30-27	Oct-20-27
487	Shop Drawing - Flooring & Polished Concrete	30	Dec-21-27	Feb-03-28
488	Shop Drawing Review & Approval - Flooring & Polished Concrete	30	Feb-04-28	Mar-17-28
489	Procure, Fabricate, Deliver to Site - Flooring & Polished Concrete	100	Mar-20-28	Aug-09-28
490	**WP-35 Tiling**	246	Jul-21-27	Jul-12-28
491	Compile Bid Documents and Invite Bidders - Tiling	5	Jul-21-27	Jul-27-27
492	Bid Period - Tiling	30	Jul-28-27	Sep-08-27
493	Level Bids, Interview Bidders, Award Scope - Tiling	15	Sep-09-27	Sep-29-27
494	Execute Subcontract - Tiling	15	Sep-30-27	Oct-20-27
495	Shop Drawing - Tiling	30	Dec-21-27	Feb-03-28
496	Shop Drawing Review & Approval - Tiling	30	Feb-04-28	Mar-17-28
497	Procure, Fabricate, Deliver to Site - Tiling	80	Mar-20-28	Jul-12-28
498	**WP-37 Painting & Wall Covering**	186	Jul-21-27	Apr-14-28
499	Compile Bid Documents and Invite Bidders - Painting & Wall Covering	5	Jul-21-27	Jul-27-27
500	Bid Period - Painting & Wall Covering	30	Jul-28-27	Sep-08-27



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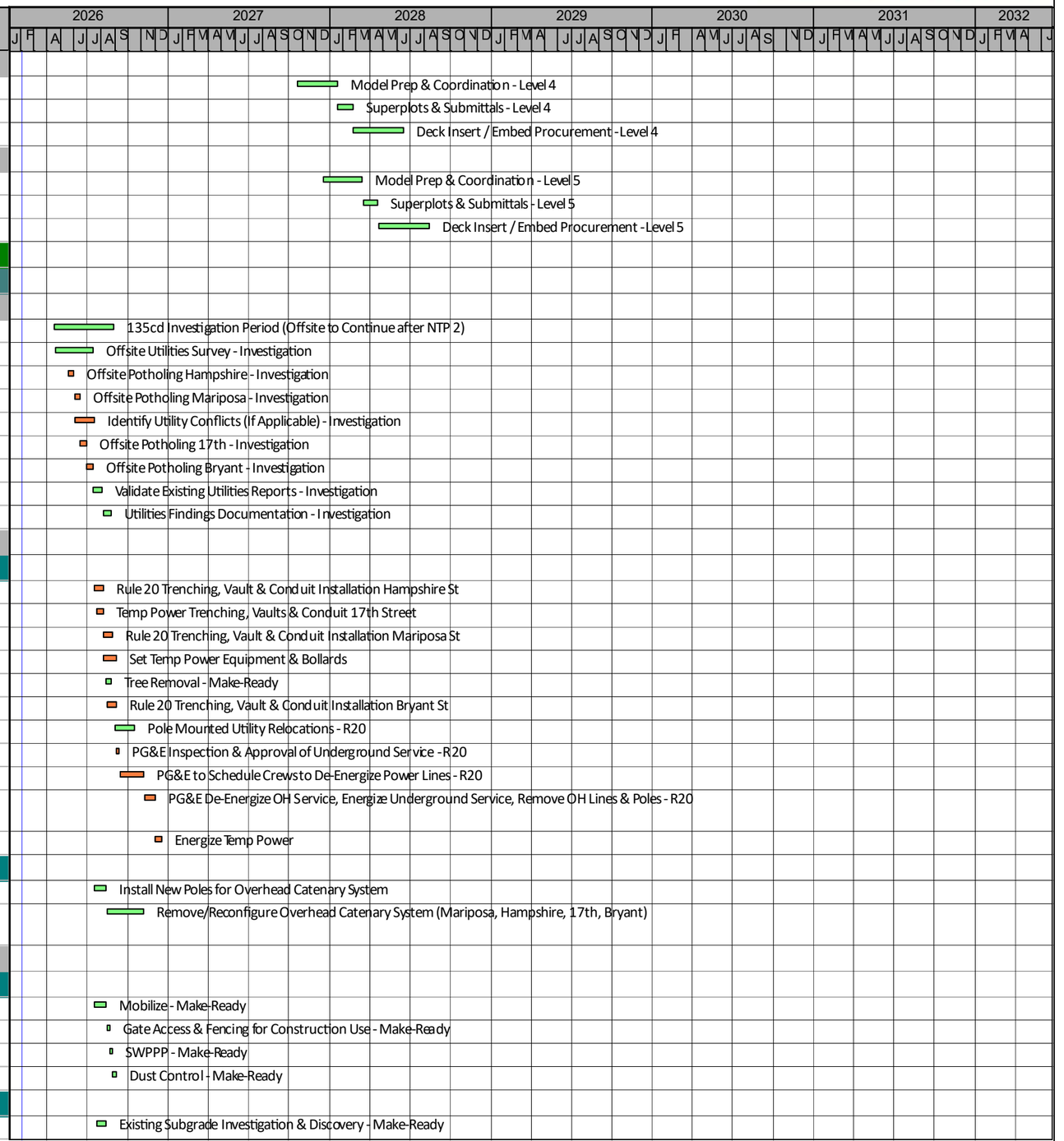
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501	Level Bids, Interview Bidders, Award Scope - Painting & Wall Covering	15	Sep-09-27	Sep-29-27
502	ExecuteSubcontract - Painting & Wall Covering	15	Sep-30-27	Oct-20-27
503	Shop Drawing - Painting & Wall Covering	30	Dec-21-27	Feb-03-28
504	Shop Drawing Review & Approval - Painting & Wall Covering	30	Feb-04-28	Mar-17-28
505	Procure, Fabricate, Deliver to Site - Painting & Wall Covering	20	Mar-20-28	Apr-14-28
506	**WP-60 Asphalt Paving**	186	Jul-21-27	Apr-14-28
507	Compile Bid Documents and InviteBidders - Asphalt Paving	5	Jul-21-27	Jul-27-27
508	Bid Period - Asphalt Paving	30	Jul-28-27	Sep-08-27
509	Level Bids, Interview Bidders, Award Scope - Asphalt Paving	15	Sep-09-27	Sep-29-27
510	ExecuteSubcontract - Asphalt Paving	15	Sep-30-27	Oct-20-27
511	Shop Drawing - Asphalt Paving	30	Dec-21-27	Feb-03-28
512	Shop Drawing Review & Approval - Asphalt Paving	30	Feb-04-28	Mar-17-28
513	Procure, Fabricate, Deliver to Site - Asphalt Paving	20	Mar-20-28	Apr-14-28
514	**WP-62 Street Improvements**	226	Jul-21-27	Jun-12-28
515	Compile Bid Documents and InviteBidders - Street Improvements	5	Jul-21-27	Jul-27-27
516	Bid Period - Street Improvements	30	Jul-28-27	Sep-08-27
517	Level Bids, Interview Bidders, Award Scope - Street Improvements	15	Sep-09-27	Sep-29-27
518	ExecuteSubcontract - Street Improvements	15	Sep-30-27	Oct-20-27
519	Shop Drawing - Street Improvements	30	Dec-21-27	Feb-03-28
520	Shop Drawing Review & Approval - Street Improvements	30	Feb-04-28	Mar-17-28
521	Procure, Fabricate, Deliver to Site - Street Improvements	60	Mar-20-28	Jun-12-28
522	**WP-67 Fencing**	246	Jul-21-27	Jul-12-28
523	Compile Bid Documents and InviteBidders - Fencing	5	Jul-21-27	Jul-27-27
524	Bid Period - Fencing	30	Jul-28-27	Sep-08-27
525	Level Bids, Interview Bidders, Award Scope - Fencing	15	Sep-09-27	Sep-29-27
526	ExecuteSubcontract - Fencing	15	Sep-30-27	Oct-20-27
527	Shop Drawing - Fencing	30	Dec-21-27	Feb-03-28
528	Shop Drawing Review & Approval - Fencing	30	Feb-04-28	Mar-17-28
529	Procure, Fabricate, Deliver to Site - Fencing	80	Mar-20-28	Jul-12-28
530	**Trade Coordination**	355	Mar-19-27	Aug-14-28
531	**Below Grade - Trade Coordination**	135	Mar-19-27	Sep-28-27
532	Model Prep & Coordination - Below Grade	50	Mar-19-27	May-27-27
533	Superplots & Submittals - Below Grade	25	May-28-27	Jul-02-27
534	Deck Insert / Embed Procurement - Below Grade	60	Jul-06-27	Sep-28-27
535	**Level 1 - Trade Coordination**	125	Apr-30-27	Oct-26-27
536	Model Prep & Coordination - Level 1	50	Apr-30-27	Jul-12-27
537	Superplots & Submittals - Level 1	25	Jul-13-27	Aug-16-27
538	Deck Insert / Embed Procurement - Level 1	50	Aug-17-27	Oct-26-27
539	**Level 2 - Trade Coordination**	165	Jun-28-27	Feb-23-28
540	Model Prep & Coordination - Level 2	60	Jun-28-27	Sep-21-27
541	Superplots & Submittals - Level 2	25	Sep-22-27	Oct-26-27
542	Deck Insert / Embed Procurement - Level 2	80	Oct-27-27	Feb-23-28
543	**Level 3 - Trade Coordination**	165	Aug-24-27	Apr-19-28
544	Model Prep & Coordination - Level 3	60	Aug-24-27	Nov-16-27
545	Superplots & Submittals - Level 3	25	Nov-17-27	Dec-23-27
546	Deck Insert / Embed Procurement - Level 3	80	Dec-28-27	Apr-19-28



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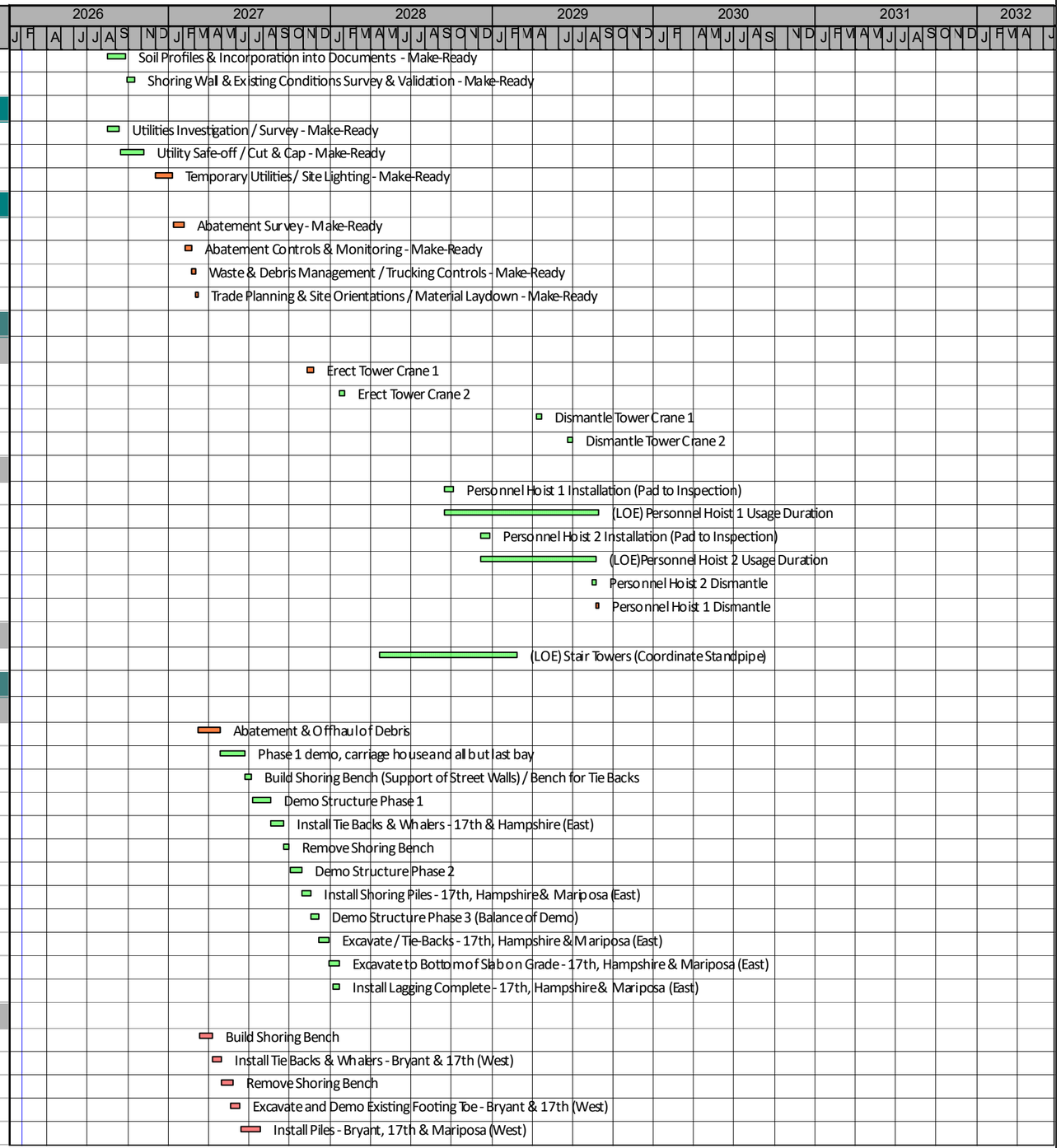
#	Activity Name	OD	Start	Finish
547	**Level 4 - Trade Coordination**	165	Oct-20-27	Jun-15-28
548	Model Prep & Coordination - Level 4	60	Oct-20-27	Jan-18-28
549	Superplots & Submittals - Level 4	25	Jan-19-28	Feb-23-28
550	Deck Insert / Embed Procurement - Level 4	80	Feb-24-28	Jun-15-28
551	**Roof Mechanical - Trade Coordination**	165	Dec-17-27	Aug-14-28
552	Model Prep & Coordination - Level 5	60	Dec-17-27	Mar-15-28
553	Superplots & Submittals - Level 5	25	Mar-16-28	Apr-19-28
554	Deck Insert / Embed Procurement - Level 5	80	Apr-20-28	Aug-14-28
555	**Construction**	1177	Apr-18-26	Dec-23-30
556	**Initial Mobilization**	222	Apr-18-26	Mar-08-27
557	**Investigation**	93	Apr-18-26	Aug-30-26
558	135cd Investigation Period (Offsite to Continue after NTP 2)	135	Apr-18-26	Aug-30-26
559	Offsite Utilities Survey - Investigation	60	Apr-20-26	Jul-14-26
560	Offsite Potholing Hampshire - Investigation	10	May-18-26	Jun-01-26
561	Offsite Potholing Mariposa - Investigation	10	Jun-02-26	Jun-15-26
562	Identify Utility Conflicts (If Applicable) - Investigation	30	Jun-04-26	Jul-16-26
563	Offsite Potholing 17th - Investigation	10	Jun-16-26	Jun-29-26
564	Offsite Potholing Bryant - Investigation	10	Jun-30-26	Jul-14-26
565	Validate Existing Utilities Reports - Investigation	15	Jul-15-26	Aug-04-26
566	Utilities Findings Documentation - Investigation	15	Aug-05-26	Aug-25-26
567	**Offsite**	105	Jul-17-26	Dec-15-26
568	**PG&E Rule 20 & Temp Power Work**	105	Jul-17-26	Dec-15-26
569	Rule 20 Trenching, Vault & Conduit Installation Hampshire St	15	Jul-17-26	Aug-06-26
570	Temp Power Trenching, Vaults & Conduit 17th Street	10	Jul-24-26	Aug-06-26
571	Rule 20 Trenching, Vault & Conduit Installation Mariposa St	15	Aug-07-26	Aug-27-26
572	Set Temp Power Equipment & Bollards	20	Aug-07-26	Sep-03-26
573	Tree Removal - Make-Ready	10	Aug-12-26	Aug-25-26
574	Rule 20 Trenching, Vault & Conduit Installation Bryant St	15	Aug-14-26	Sep-03-26
575	Pole Mounted Utility Relocations - R20	30	Sep-03-26	Oct-15-26
576	PG&E Inspection & Approval of Underground Service - R20	5	Sep-04-26	Sep-11-26
577	PG&E to Schedule Crews to De-Energize Power Lines - R20	40	Sep-14-26	Nov-06-26
578	PG&E De-Energize OH Service, Energize Underground Service, Remove OH Lines & Poles - R20	15	Nov-09-26	Dec-01-26
579	Energize Temp Power	10	Dec-02-26	Dec-15-26
580	**Overhead Catenary System Removal**	80	Jul-17-26	Nov-06-26
581	Install New Poles for Overhead Catenary System	20	Jul-17-26	Aug-13-26
582	Remove/Reconfigure Overhead Catenary System (Mariposa, Hampshire, 17th, Bryant)	60	Aug-14-26	Nov-06-26
583	**Onsite**	160	Jul-17-26	Mar-08-27
584	**Requirements & Mitigation**	35	Jul-17-26	Sep-03-26
585	Mobilize - Make-Ready	20	Jul-17-26	Aug-13-26
586	Gate Access & Fencing for Construction Use - Make-Ready	5	Aug-14-26	Aug-20-26
587	SWPPP - Make-Ready	5	Aug-21-26	Aug-27-26
588	Dust Control - Make-Ready	5	Aug-28-26	Sep-03-26
589	**Geotech**	60	Jul-24-26	Oct-16-26
590	Existing Subgrade Investigation & Discovery - Make-Ready	15	Jul-24-26	Aug-13-26



Potrero Yard Modernization
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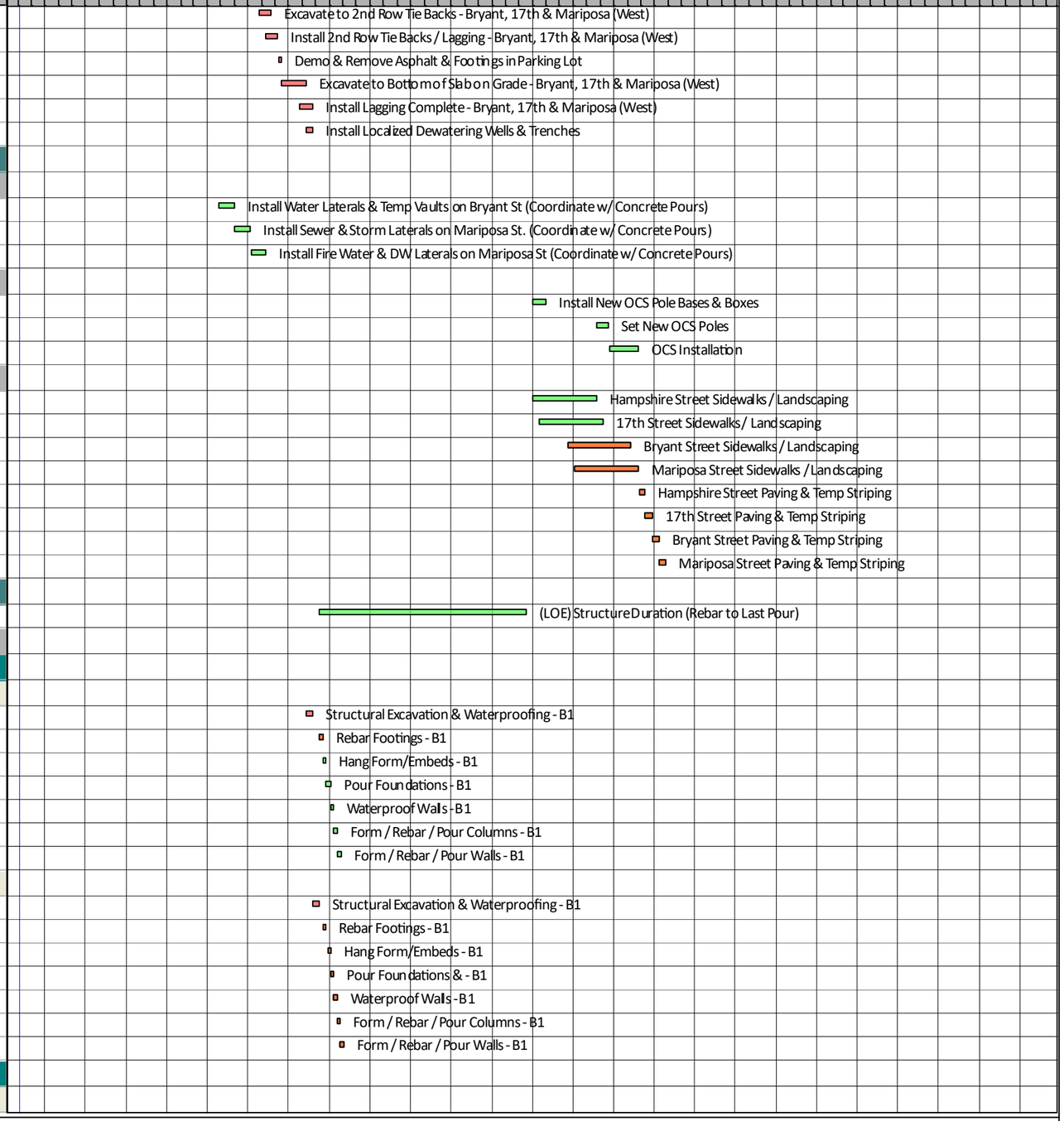
#	Activity Name	OD	Start	Finish
591	Soil Profiles & Incorporation into Documents - Make-Ready	30	Aug-14-26	Sep-25-26
592	Shoring Wall & Existing Conditions Survey & Validation - Make-Ready	15	Sep-28-26	Oct-16-26
593	**Utilities**	100	Aug-14-26	Jan-08-27
594	Utilities Investigation / Survey - Make-Ready	20	Aug-14-26	Sep-11-26
595	Utility Safe-off / Cut & Cap - Make-Ready	40	Sep-14-26	Nov-06-26
596	Temporary Utilities/ Site Lighting - Make-Ready	25	Dec-02-26	Jan-08-27
597	**Hazmat**	40	Jan-11-27	Mar-08-27
598	Abatement Survey - Make-Ready	20	Jan-11-27	Feb-05-27
599	Abatement Controls & Monitoring - Make-Ready	10	Feb-08-27	Feb-22-27
600	Waste & Debris Management / Trucking Controls - Make-Ready	5	Feb-23-27	Mar-01-27
601	Trade Planning & Site Orientations / Material Laydown - Make-Ready	5	Mar-02-27	Mar-08-27
602	**Equipment & Logistics**	452	Nov-10-27	Aug-29-29
603	**Tower Cranes**	412	Nov-10-27	Jul-03-29
604	Erect Tower Crane 1	10	Nov-10-27	Nov-23-27
605	Erect Tower Crane 2	10	Jan-21-28	Feb-03-28
606	Dismantle Tower Crane 1	10	Apr-10-29	Apr-23-29
607	Dismantle Tower Crane 2	10	Jun-20-29	Jul-03-29
608	**Personnel Hoists**	240	Sep-15-28	Aug-29-29
609	Personnel Hoist 1 Installation (Pad to Inspection)	15	Sep-15-28	Oct-05-28
610	(LOE) Personnel Hoist 1 Usage Duration	240	Sep-15-28	Aug-29-29
611	Personnel Hoist 2 Installation (Pad to Inspection)	15	Dec-05-28	Dec-27-28
612	(LOE)Personnel Hoist 2 Usage Duration	180	Dec-05-28	Aug-22-29
613	Personnel Hoist 2 Dismantle	5	Aug-16-29	Aug-22-29
614	Personnel Hoist 1 Dismantle	5	Aug-23-29	Aug-29-29
615	**Stair Towers**	212	Apr-20-28	Feb-26-29
616	(LOE) Stair Towers (Coordinate Standpipe)	212	Apr-20-28	Feb-26-29
617	**Demo, Shoring & Excavation**	220	Mar-09-27	Jan-20-28
618	**East Half of Site (Existing Structure)**	220	Mar-09-27	Jan-20-28
619	Abatement & Offhaul of Debris	35	Mar-09-27	Apr-26-27
620	Phase 1 demo, carriage house and all but last bay	40	Apr-27-27	Jun-22-27
621	Build Shoring Bench (Support of Street Walls) / Bench for Tie Backs	10	Jun-23-27	Jul-07-27
622	Demo Structure Phase 1	30	Jul-08-27	Aug-18-27
623	Install Tie Backs & Whalers - 17th & Hampshire (East)	20	Aug-19-27	Sep-16-27
624	Remove Shoring Bench	10	Sep-17-27	Sep-30-27
625	Demo Structure Phase 2	20	Oct-01-27	Oct-28-27
626	Install Shoring Piles - 17th, Hampshire& Mariposa (East)	15	Oct-29-27	Nov-18-27
627	Demo Structure Phase 3 (Balance of Demo)	10	Nov-19-27	Dec-06-27
628	Excavate / Tie-Backs - 17th, Hampshire & Mariposa (East)	15	Dec-07-27	Dec-29-27
629	Excavate to Bottom of Slab on Grade - 17th, Hampshire & Mariposa (East)	15	Dec-30-27	Jan-20-28
630	Install Lagging Complete - 17th, Hampshire& Mariposa (East)	10	Jan-07-28	Jan-20-28
631	**West Half of Site (Parking lot)**	180	Mar-12-27	Nov-23-27
632	Build Shoring Bench	20	Mar-12-27	Apr-08-27
633	Install Tie Backs & Whalers - Bryant & 17th (West)	15	Apr-09-27	Apr-29-27
634	Remove Shoring Bench	20	Apr-30-27	May-27-27
635	Excavate and Demo Existing Footing Toe - Bryant & 17th (West)	15	May-21-27	Jun-11-27
636	Install Piles - Bryant, 17th & Mariposa (West)	30	Jun-14-27	Jul-26-27



Potrero Yard Modernization
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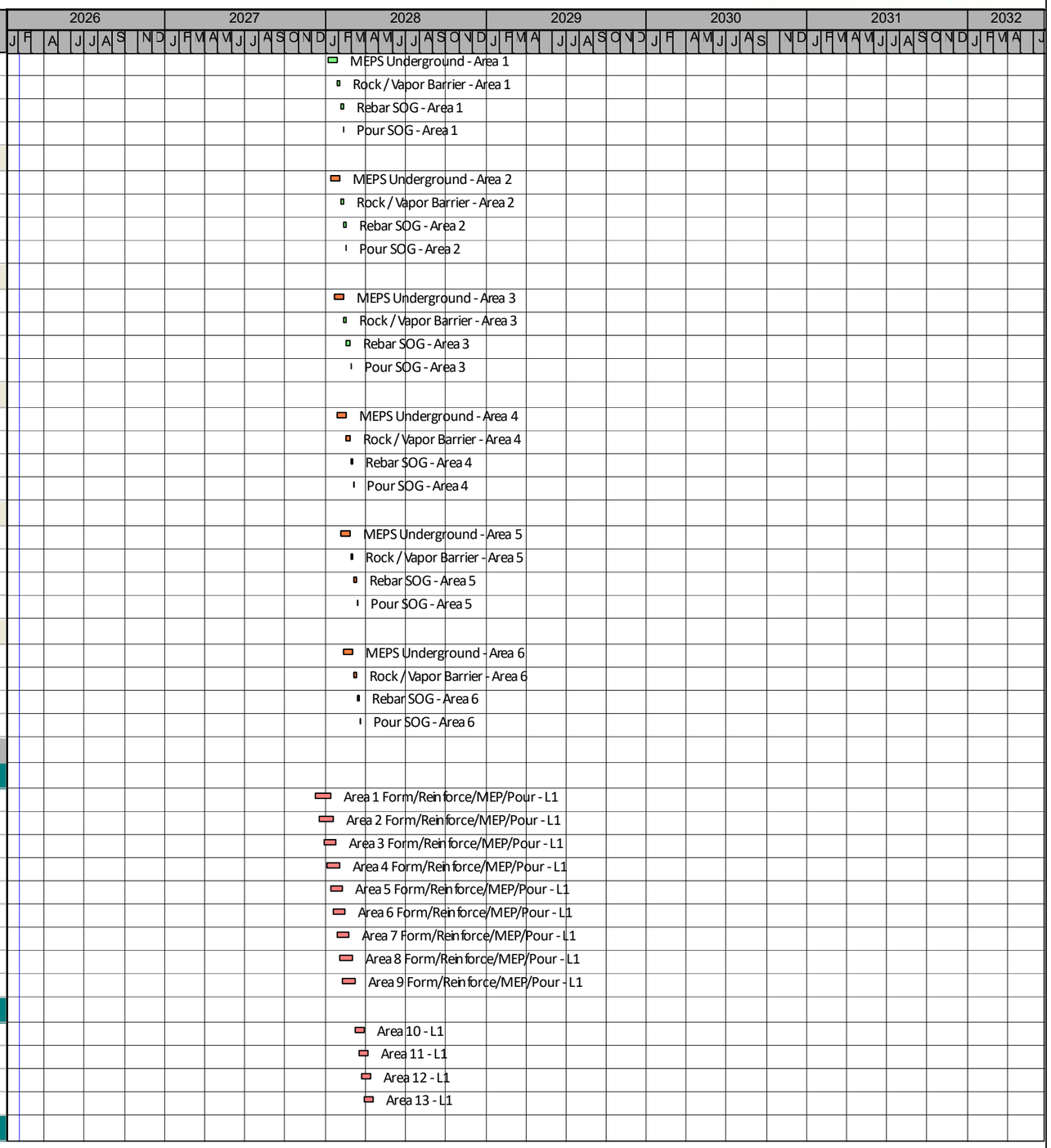
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#	Activity Name	OD	Start	Finish
637	Excavate to 2nd Row Tie Backs - Bryant, 17th & Mariposa (West)	20	Jul-27-27	Aug-23-27
638	Install 2nd Row Tie Backs / Lagging - Bryant, 17th & Mariposa (West)	20	Aug-10-27	Sep-07-27
639	Demo & Remove Asphalt & Footings in Parking Lot	5	Sep-08-27	Sep-14-27
640	Excavate to Bottom of Slab on Grade - Bryant, 17th & Mariposa (West)	40	Sep-15-27	Nov-09-27
641	Install Lagging Complete - Bryant, 17th & Mariposa (West)	20	Oct-27-27	Nov-23-27
642	Install Localized Dewatering Wells & Trenches	10	Nov-10-27	Nov-23-27
643	**Site Utilities / Civil Work**	690	Apr-27-27	Jan-25-30
644	**Site Utility Work**	75	Apr-27-27	Aug-11-27
645	Install Water Laterals & Temp Vaults on Bryant St (Coordinate w/ Concrete Pours)	25	Apr-27-27	Jun-01-27
646	Install Sewer & Storm Laterals on Mariposa St. (Coordinate w/ Concrete Pours)	25	Jun-02-27	Jul-07-27
647	Install Fire Water & DW Laterals on Mariposa St (Coordinate w/ Concrete Pours)	25	Jul-08-27	Aug-11-27
648	**Overhead Catenary System (Outside Building)**	165	Apr-03-29	Nov-26-29
649	Install New OCS Pole Bases & Boxes	20	Apr-03-29	Apr-30-29
650	Set New OCS Poles	20	Aug-23-29	Sep-20-29
651	OCS Installation	45	Sep-21-29	Nov-26-29
652	**Sidewalks / Landscaping / Street Paving**	205	Apr-03-29	Jan-25-30
653	Hampshire Street Sidewalks / Landscaping	100	Apr-03-29	Aug-22-29
654	17th Street Sidewalks/ Landscaping	100	Apr-17-29	Sep-06-29
655	Bryant Street Sidewalks / Landscaping	100	Jun-20-29	Nov-08-29
656	Mariposa Street Sidewalks /Landscaping	100	Jul-05-29	Nov-26-29
657	Hampshire Street Paving & Temp Striping	10	Nov-27-29	Dec-10-29
658	17th Street Paving & Temp Striping	10	Dec-11-29	Dec-26-29
659	Bryant Street Paving & Temp Striping	10	Dec-27-29	Jan-10-30
660	Mariposa Street Paving & Temp Striping	10	Jan-11-30	Jan-25-30
661	**Structure**	392	Nov-10-27	Jun-05-29
662	(LOE) Structure Duration (Rebar to Last Pour)	317	Dec-10-27	Mar-19-29
663	**Foundations - Structure**	88	Nov-10-27	Mar-20-28
664	**Foundations B1**	57	Nov-10-27	Feb-03-28
665	**Area 1 - Foundations B1**	52	Nov-10-27	Jan-27-28
666	Structural Excavation & Waterproofing - B1	10	Nov-10-27	Nov-23-27
667	Rebar Footings - B1	5	Dec-10-27	Dec-16-27
668	Hang Form/Embeds - B1	4	Dec-17-27	Dec-22-27
669	Pour Foundations - B1	5	Dec-23-27	Jan-03-28
670	Waterproof Walls - B1	5	Jan-04-28	Jan-10-28
671	Form / Rebar / Pour Columns - B1	5	Jan-11-28	Jan-17-28
672	Form / Rebar / Pour Walls - B1	8	Jan-18-28	Jan-27-28
673	**Area 2 - Foundations B1**	47	Nov-24-27	Feb-03-28
674	Structural Excavation & Waterproofing - B1	10	Nov-24-27	Dec-09-27
675	Rebar Footings - B1	5	Dec-17-27	Dec-23-27
676	Hang Form/Embeds - B1	4	Dec-28-27	Jan-03-28
677	Pour Foundations & - B1	5	Jan-04-28	Jan-10-28
678	Waterproof Walls - B1	5	Jan-11-28	Jan-17-28
679	Form / Rebar / Pour Columns - B1	5	Jan-18-28	Jan-24-28
680	Form / Rebar / Pour Walls - B1	8	Jan-25-28	Feb-03-28
681	**Slab on Grade**	51	Jan-07-28	Mar-20-28
682	**Area 1 - SOG**	26	Jan-07-28	Feb-11-28



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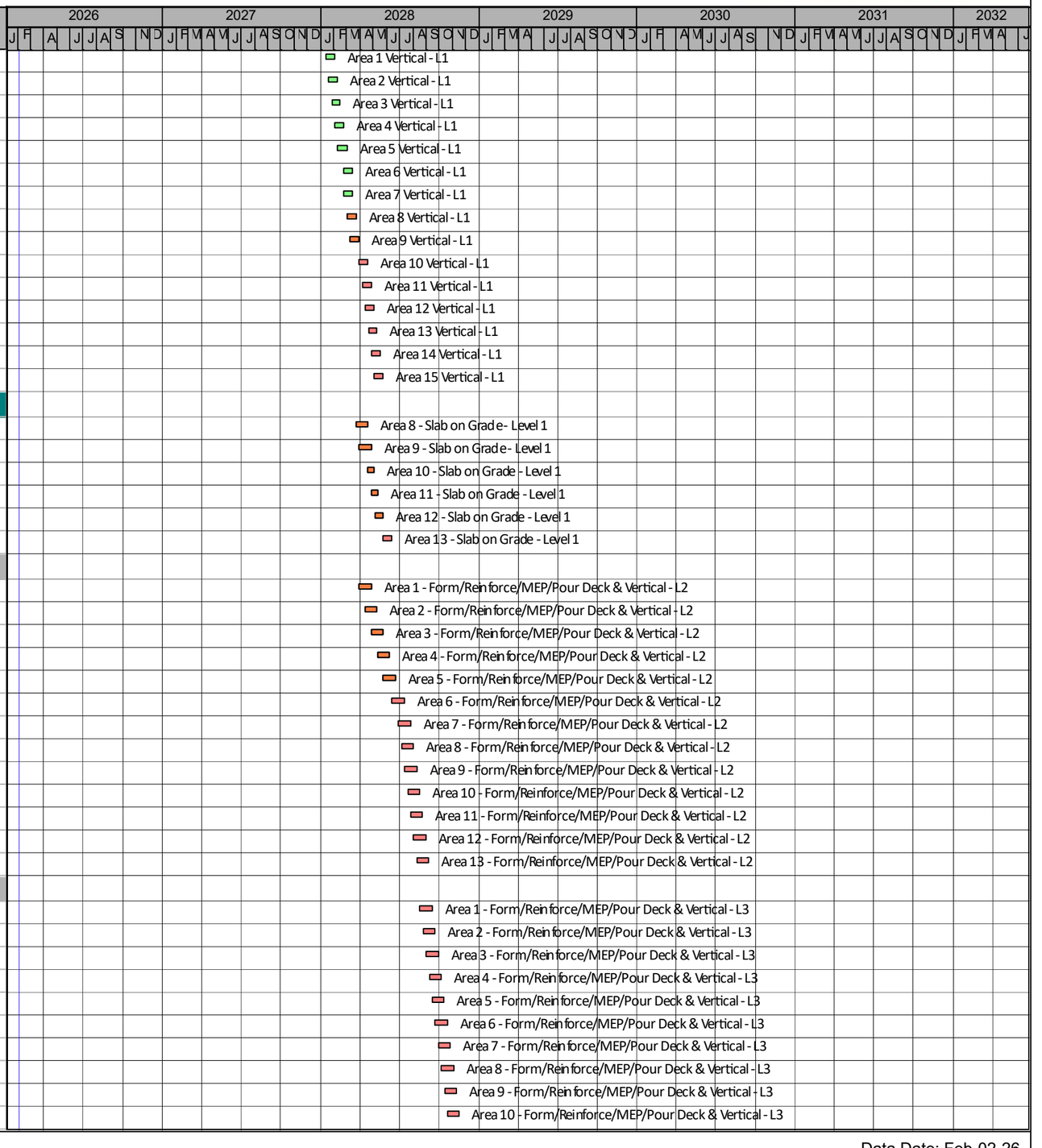
#	Activity Name	OD	Start	Finish
683	MEPS Underground - Area 1	15	Jan-07-28	Jan-27-28
684	Rock / Vapor Barrier - Area 1	5	Jan-28-28	Feb-03-28
685	Rebar SOG - Area 1	5	Feb-04-28	Feb-10-28
686	Pour SOG - Area 1	1	Feb-11-28	Feb-11-28
687	**Area 2 - SOG**	26	Jan-14-28	Feb-18-28
688	MEPS Underground - Area 2	15	Jan-14-28	Feb-03-28
689	Rock / Vapor Barrier - Area 2	5	Feb-04-28	Feb-10-28
690	Rebar SOG - Area 2	5	Feb-11-28	Feb-17-28
691	Pour SOG - Area 2	1	Feb-18-28	Feb-18-28
692	**Area 3 - SOG**	26	Jan-21-28	Feb-28-28
693	MEPS Underground - Area 3	15	Jan-21-28	Feb-10-28
694	Rock / Vapor Barrier - Area 3	5	Feb-11-28	Feb-17-28
695	Rebar SOG - Area 3	5	Feb-18-28	Feb-25-28
696	Pour SOG - Area 3	1	Feb-28-28	Feb-28-28
697	**Area 4 - SOG**	26	Jan-28-28	Mar-06-28
698	MEPS Underground - Area 4	15	Jan-28-28	Feb-17-28
699	Rock / Vapor Barrier - Area 4	5	Feb-18-28	Feb-25-28
700	Rebar SOG - Area 4	5	Feb-28-28	Mar-03-28
701	Pour SOG - Area 4	1	Mar-06-28	Mar-06-28
702	**Area 5 - SOG**	26	Feb-04-28	Mar-13-28
703	MEPS Underground - Area 5	15	Feb-04-28	Feb-25-28
704	Rock / Vapor Barrier - Area 5	5	Feb-28-28	Mar-03-28
705	Rebar SOG - Area 5	5	Mar-06-28	Mar-10-28
706	Pour SOG - Area 5	1	Mar-13-28	Mar-13-28
707	**Area 6 - SOG**	26	Feb-11-28	Mar-20-28
708	MEPS Underground - Area 6	15	Feb-11-28	Mar-03-28
709	Rock / Vapor Barrier - Area 6	5	Mar-06-28	Mar-10-28
710	Rebar SOG - Area 6	5	Mar-13-28	Mar-17-28
711	Pour SOG - Area 6	1	Mar-20-28	Mar-20-28
712	**Level 1 - Structure**	127	Dec-10-27	Jun-12-28
713	**Foundations - Level 1**	60	Dec-10-27	Mar-08-28
714	Area 1 Form/Reinforce/MEP/Pour - L1	20	Dec-10-27	Jan-11-28
715	Area 2 Form/Reinforce/MEP/Pour - L1	20	Dec-17-27	Jan-18-28
716	Area 3 Form/Reinforce/MEP/Pour - L1	20	Dec-28-27	Jan-25-28
717	Area 4 Form/Reinforce/MEP/Pour - L1	20	Jan-05-28	Feb-01-28
718	Area 5 Form/Reinforce/MEP/Pour - L1	20	Jan-12-28	Feb-08-28
719	Area 6 Form/Reinforce/MEP/Pour - L1	20	Jan-19-28	Feb-15-28
720	Area 7 Form/Reinforce/MEP/Pour - L1	20	Jan-26-28	Feb-23-28
721	Area 8 Form/Reinforce/MEP/Pour - L1	20	Feb-02-28	Mar-01-28
722	Area 9 Form/Reinforce/MEP/Pour - L1	20	Feb-09-28	Mar-08-28
723	**Elevated Decks - Level 1**	30	Mar-09-28	Apr-19-28
724	Area 10 - L1	15	Mar-09-28	Mar-29-28
725	Area 11 - L1	15	Mar-16-28	Apr-05-28
726	Area 12 - L1	15	Mar-23-28	Apr-12-28
727	Area 13 - L1	15	Mar-30-28	Apr-19-28
728	**Vertical - Level 1**	95	Jan-12-28	May-24-28



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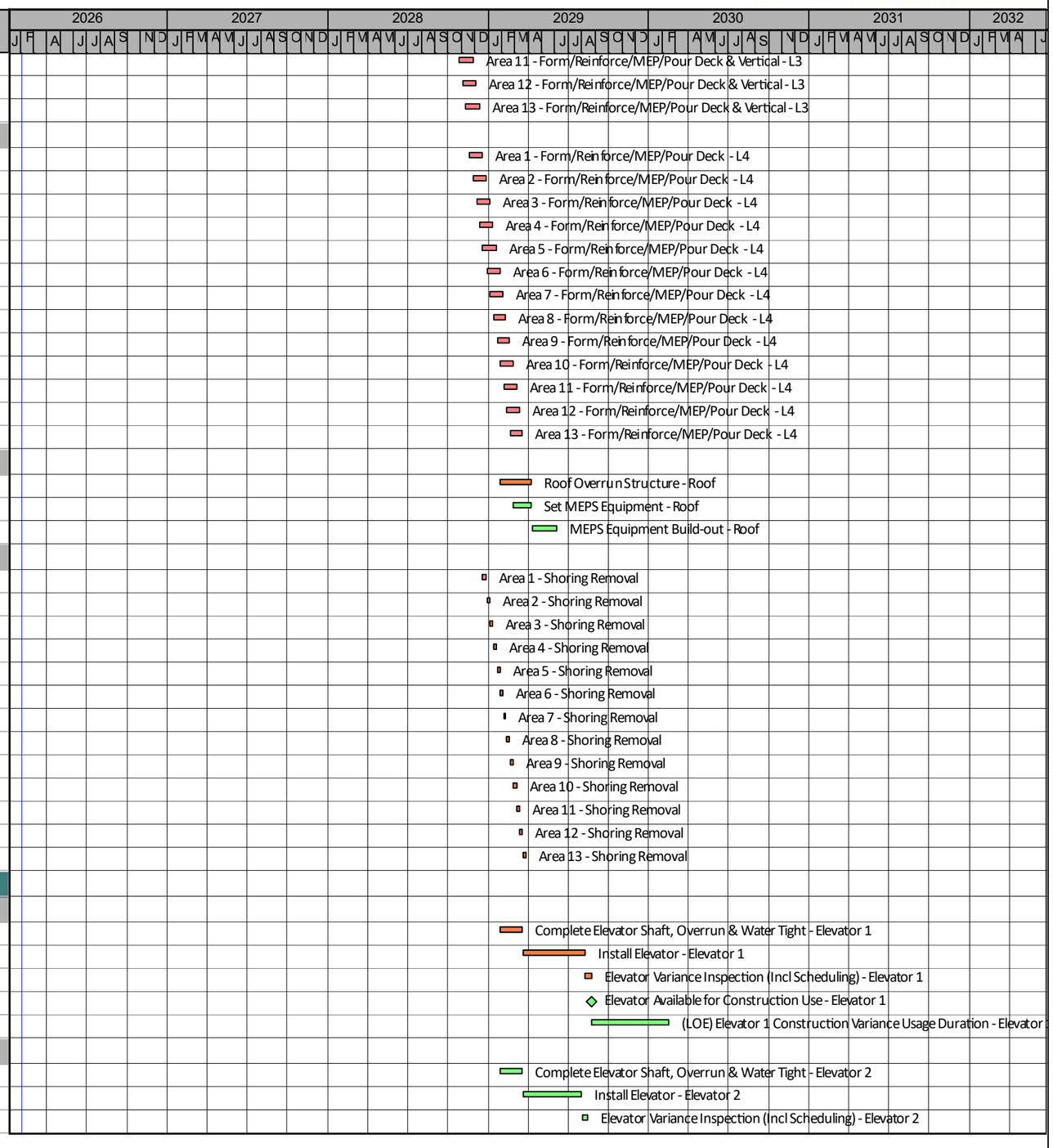
#	Activity Name	OD	Start	Finish
729	Area 1 Vertical - L1	15	Jan-12-28	Feb-01-28
730	Area 2 Vertical - L1	15	Jan-19-28	Feb-08-28
731	Area 3 Vertical - L1	15	Jan-26-28	Feb-15-28
732	Area 4 Vertical - L1	15	Feb-02-28	Feb-23-28
733	Area 5 Vertical - L1	15	Feb-09-28	Mar-01-28
734	Area 6 Vertical - L1	15	Feb-22-28	Mar-13-28
735	Area 7 Vertical - L1	15	Feb-24-28	Mar-15-28
736	Area 8 Vertical - L1	15	Mar-02-28	Mar-22-28
737	Area 9 Vertical - L1	15	Mar-09-28	Mar-29-28
738	Area 10 Vertical - L1	15	Mar-30-28	Apr-19-28
739	Area 11 Vertical - L1	15	Apr-06-28	Apr-26-28
740	Area 12 Vertical - L1	15	Apr-13-28	May-03-28
741	Area 13 Vertical - L1	15	Apr-20-28	May-10-28
742	Area 14 Vertical - L1	15	Apr-27-28	May-17-28
743	Area 15 Vertical - L1	15	May-04-28	May-24-28
744	**Slab on Grade - Level 1**	57	Mar-23-28	Jun-12-28
745	Area 8 - Slab on Grade - Level 1	20	Mar-23-28	Apr-19-28
746	Area 9 - Slab on Grade - Level 1	20	Mar-30-28	Apr-26-28
747	Area 10 - Slab on Grade - Level 1	12	Apr-18-28	May-03-28
748	Area 11 - Slab on Grade - Level 1	12	Apr-27-28	May-12-28
749	Area 12 - Slab on Grade - Level 1	12	May-05-28	May-22-28
750	Area 13 - Slab on Grade - Level 1	12	May-25-28	Jun-12-28
751	**Level 2 - Structure**	112	Mar-30-28	Sep-07-28
752	Area 1 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Mar-30-28	Apr-26-28
753	Area 2 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Apr-13-28	May-10-28
754	Area 3 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Apr-27-28	May-24-28
755	Area 4 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	May-11-28	Jun-08-28
756	Area 5 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	May-25-28	Jun-22-28
757	Area 6 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jun-13-28	Jul-12-28
758	Area 7 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jun-27-28	Jul-26-28
759	Area 8 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-06-28	Aug-02-28
760	Area 9 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-13-28	Aug-09-28
761	Area 10 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-20-28	Aug-16-28
762	Area 11 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Jul-27-28	Aug-23-28
763	Area 12 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Aug-03-28	Aug-30-28
764	Area 13 - Form/Reinforce/MEP/Pour Deck & Vertical - L2	20	Aug-10-28	Sep-07-28
765	**Level 3 - Structure**	80	Aug-17-28	Dec-11-28
766	Area 1 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-17-28	Sep-14-28
767	Area 2 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-24-28	Sep-21-28
768	Area 3 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Aug-31-28	Sep-28-28
769	Area 4 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-08-28	Oct-05-28
770	Area 5 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-15-28	Oct-12-28
771	Area 6 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-22-28	Oct-19-28
772	Area 7 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Sep-29-28	Oct-26-28
773	Area 8 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-06-28	Nov-02-28
774	Area 9 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-13-28	Nov-09-28
775	Area 10 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-20-28	Nov-16-28



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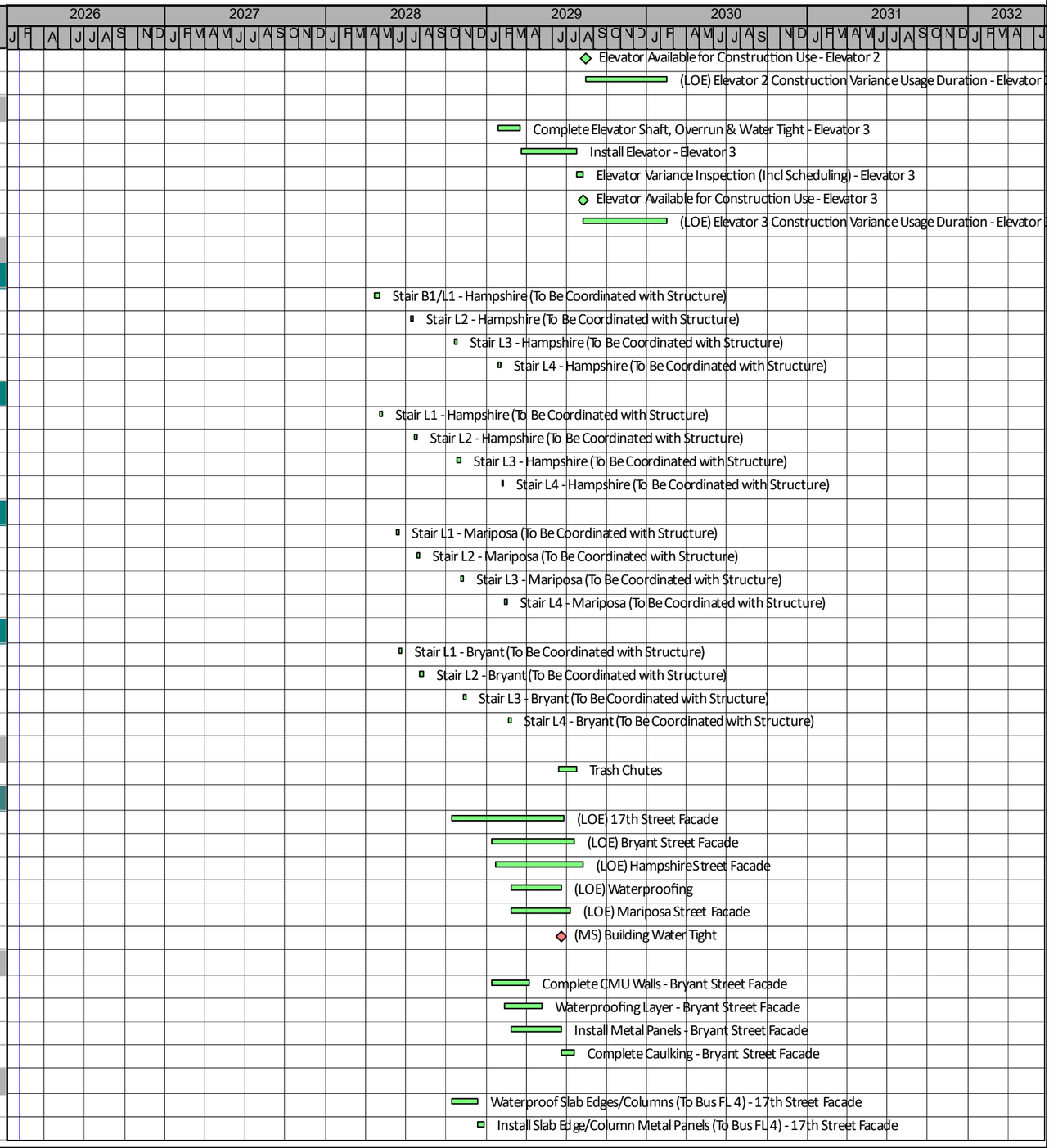
#	Activity Name	OD	Start	Finish
776	Area 11 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Oct-27-28	Nov-27-28
777	Area 12 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Nov-03-28	Dec-04-28
778	Area 13 - Form/Reinforce/MEP/Pour Deck & Vertical - L3	20	Nov-10-28	Dec-11-28
779	**Level 4 - Structure**	80	Nov-17-28	Mar-19-29
780	Area 1 - Form/Reinforce/MEP/Pour Deck - L4	20	Nov-17-28	Dec-18-28
781	Area 2 - Form/Reinforce/MEP/Pour Deck - L4	20	Nov-28-28	Dec-27-28
782	Area 3 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-05-28	Jan-04-29
783	Area 4 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-12-28	Jan-11-29
784	Area 5 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-19-28	Jan-19-29
785	Area 6 - Form/Reinforce/MEP/Pour Deck - L4	20	Dec-28-28	Jan-26-29
786	Area 7 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-05-29	Feb-02-29
787	Area 8 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-12-29	Feb-09-29
788	(LOE) Structure	20	Jan-22-29	Feb-16-29
789	Area 10 - Form/Reinforce/MEP/Pour Deck - L4	20	Jan-29-29	Feb-26-29
790	Area 11 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-05-29	Mar-05-29
791	Area 12 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-12-29	Mar-12-29
792	Area 13 - Form/Reinforce/MEP/Pour Deck - L4	20	Feb-20-29	Mar-19-29
793	**Roof Overrun**	90	Jan-29-29	Jun-05-29
794	Roof Overrun Structure - Roof	50	Jan-29-29	Apr-09-29
795	Set MEPS Equipment - Roof	30	Feb-27-29	Apr-09-29
796	MEPS Equipment Build-out - Roof	40	Apr-10-29	Jun-05-29
797	**Shoring Removal**	65	Dec-19-28	Mar-26-29
798	Area 1 - Shoring Removal	5	Dec-19-28	Dec-27-28
799	Area 2 - Shoring Removal	5	Dec-28-28	Jan-04-29
800	Area 3 - Shoring Removal	5	Jan-05-29	Jan-11-29
801	Area 4 - Shoring Removal	5	Jan-12-29	Jan-19-29
802	Area 5 - Shoring Removal	5	Jan-22-29	Jan-26-29
803	Area 6 - Shoring Removal	5	Jan-29-29	Feb-02-29
804	Area 7 - Shoring Removal	5	Feb-05-29	Feb-09-29
805	Area 8 - Shoring Removal	5	Feb-12-29	Feb-16-29
806	Area 9 - Shoring Removal	5	Feb-20-29	Feb-26-29
807	Area 10 - Shoring Removal	5	Feb-27-29	Mar-05-29
808	Area 11 - Shoring Removal	5	Mar-06-29	Mar-12-29
809	Area 12 - Shoring Removal	5	Mar-13-29	Mar-19-29
810	Area 13 - Shoring Removal	5	Mar-20-29	Mar-26-29
811	**Elevators & Stairs**	457	Apr-20-28	Feb-15-30
812	**Elevator 1 - Basement to Roof (17th St)**	265	Jan-29-29	Feb-15-30
813	Complete Elevator Shaft, Overrun & Water Tight - Elevator 1	35	Jan-29-29	Mar-19-29
814	Install Elevator - Elevator 1	100	Mar-20-29	Aug-08-29
815	Elevator Variance Inspection (Incl Scheduling) - Elevator 1	10	Aug-09-29	Aug-22-29
816	Elevator Available for Construction Use - Elevator 1	0	Aug-23-29	
817	(LOE) Elevator 1 Construction Variance Usage Duration - Elevator 1	120	Aug-23-29	Feb-15-30
818	**Elevator 2 - Basement to L4 (Mariposa St)**	265	Jan-29-29	Feb-15-30
819	Complete Elevator Shaft, Overrun & Water Tight - Elevator 2	35	Jan-29-29	Mar-19-29
820	Install Elevator - Elevator 2	95	Mar-20-29	Aug-01-29
821	Elevator Variance Inspection (Incl Scheduling) - Elevator 2	10	Aug-02-29	Aug-15-29



Potrero Yard Modernization
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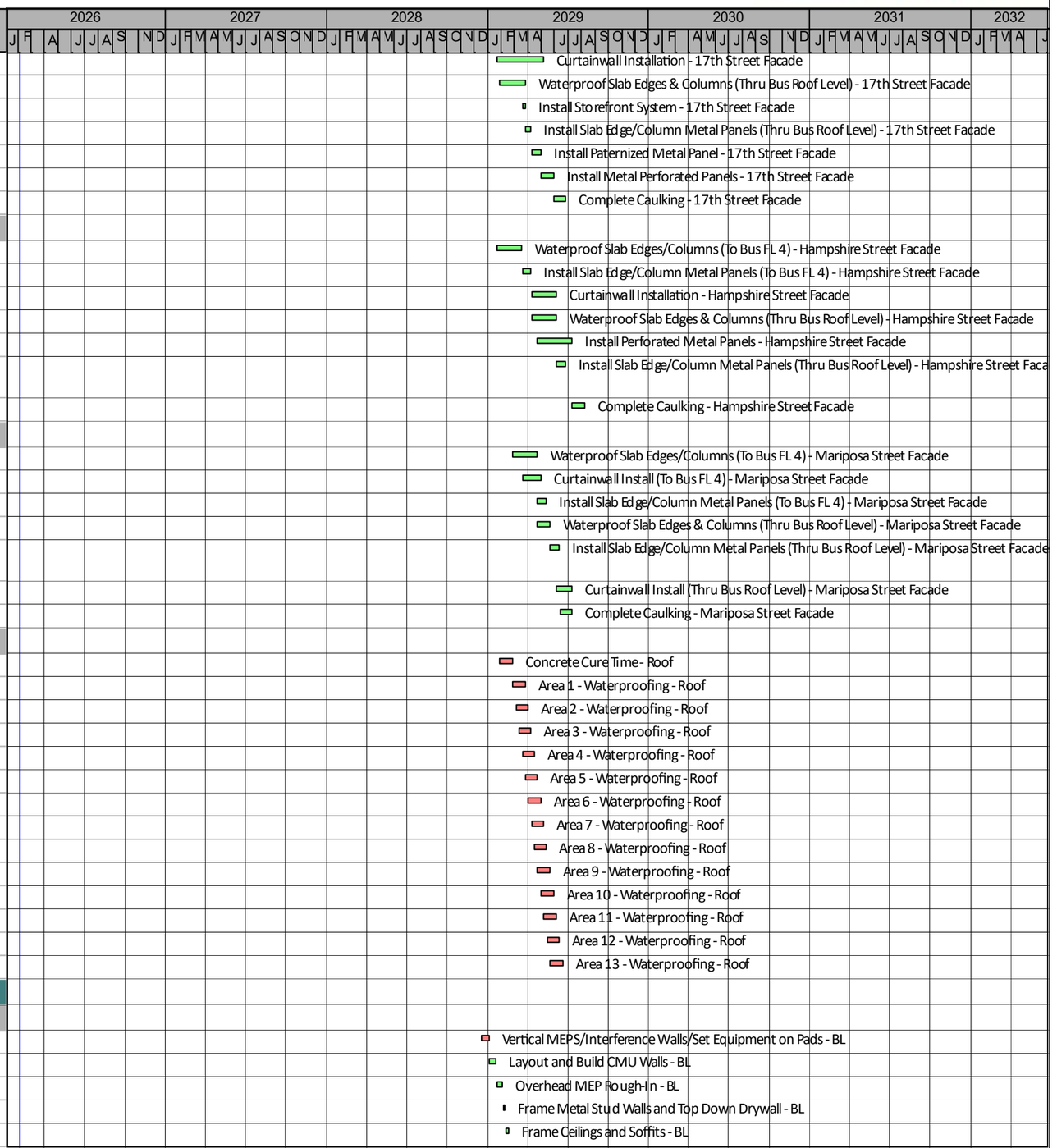
#	Activity Name	OD	Start	Finish
822	Elevator Available for Construction Use - Elevator 2	0	Aug-16-29	
823	(LOE) Elevator 2 Construction Variance Usage Duration - Elevator 2	125	Aug-16-29	Feb-15-30
824	**Elevator 3 - Ground to L4 (Hampshire St)**	265	Jan-29-29	Feb-15-30
825	Complete Elevator Shaft, Overrun & Water Tight - Elevator 3	35	Jan-29-29	Mar-19-29
826	Install Elevator - Elevator 3	90	Mar-20-29	Jul-25-29
827	Elevator Variance Inspection (Incl Scheduling) - Elevator 3	10	Jul-26-29	Aug-08-29
828	Elevator Available for Construction Use - Elevator 3	0	Aug-09-29	
829	(LOE) Elevator 3 Construction Variance Usage Duration - Elevator 3	130	Aug-09-29	Feb-15-30
830	**Stairs**	212	Apr-20-28	Feb-26-29
831	**Hampshire (South)**	197	Apr-20-28	Feb-02-29
832	Stair B1/L1 - Hampshire (To Be Coordinated with Structure)	10	Apr-20-28	May-03-28
833	Stair L2 - Hampshire (To Be Coordinated with Structure)	5	Jul-13-28	Jul-19-28
834	Stair L3 - Hampshire (To Be Coordinated with Structure)	5	Oct-20-28	Oct-26-28
835	Stair L4 - Hampshire (To Be Coordinated with Structure)	5	Jan-29-29	Feb-02-29
836	**Hampshire (North)**	192	May-04-28	Feb-09-29
837	Stair L1 - Hampshire (To Be Coordinated with Structure)	5	May-04-28	May-10-28
838	Stair L2 - Hampshire (To Be Coordinated with Structure)	5	Jul-20-28	Jul-26-28
839	Stair L3 - Hampshire (To Be Coordinated with Structure)	5	Oct-27-28	Nov-02-28
840	Stair L4 - Hampshire (To Be Coordinated with Structure)	5	Feb-05-29	Feb-09-29
841	**Mariposa**	172	Jun-09-28	Feb-16-29
842	Stair L1 - Mariposa (To Be Coordinated with Structure)	5	Jun-09-28	Jun-15-28
843	Stair L2 - Mariposa (To Be Coordinated with Structure)	5	Jul-27-28	Aug-02-28
844	Stair L3 - Mariposa (To Be Coordinated with Structure)	5	Nov-03-28	Nov-09-28
845	Stair L4 - Mariposa (To Be Coordinated with Structure)	5	Feb-12-29	Feb-16-29
846	**17th & Bryant**	172	Jun-16-28	Feb-26-29
847	Stair L1 - Bryant (To Be Coordinated with Structure)	5	Jun-16-28	Jun-22-28
848	Stair L2 - Bryant (To Be Coordinated with Structure)	5	Aug-03-28	Aug-09-28
849	Stair L3 - Bryant (To Be Coordinated with Structure)	5	Nov-10-28	Nov-16-28
850	Stair L4 - Bryant (To Be Coordinated with Structure)	5	Feb-20-29	Feb-26-29
851	**Trash Chutes**	30	Jun-13-29	Jul-25-29
852	Trash Chutes	30	Jun-13-29	Jul-25-29
853	**Building Facade & Roofing**	205	Oct-13-28	Aug-08-29
854	(LOE) 17th Street Facade	175	Oct-13-28	Jun-26-29
855	(LOE) Bryant Street Facade	130	Jan-12-29	Jul-18-29
856	(LOE) HampshireStreet Facade	140	Jan-22-29	Aug-08-29
857	(LOE) Waterproofing	80	Feb-27-29	Jun-19-29
858	(LOE) Mariposa Street Facade	95	Feb-27-29	Jul-11-29
859	(MS) Building Water Tight	0		Jun-19-29
860	**Bryant St Facade**	130	Jan-12-29	Jul-18-29
861	Complete CMU Walls - Bryant Street Facade	60	Jan-12-29	Apr-09-29
862	Waterproofing Layer - Bryant Street Facade	60	Feb-12-29	May-07-29
863	Install Metal Panels - Bryant Street Facade	80	Feb-27-29	Jun-19-29
864	Complete Caulking - Bryant Street Facade	20	Jun-20-29	Jul-18-29
865	**17th Street Facade**	175	Oct-13-28	Jun-26-29
866	Waterproof Slab Edges/Columns (To Bus FL 4) - 17th Street Facade	40	Oct-13-28	Dec-11-28
867	Install Slab Edge/Column Metal Panels (To Bus FL 4) - 17th Street Facade	10	Dec-12-28	Dec-27-28



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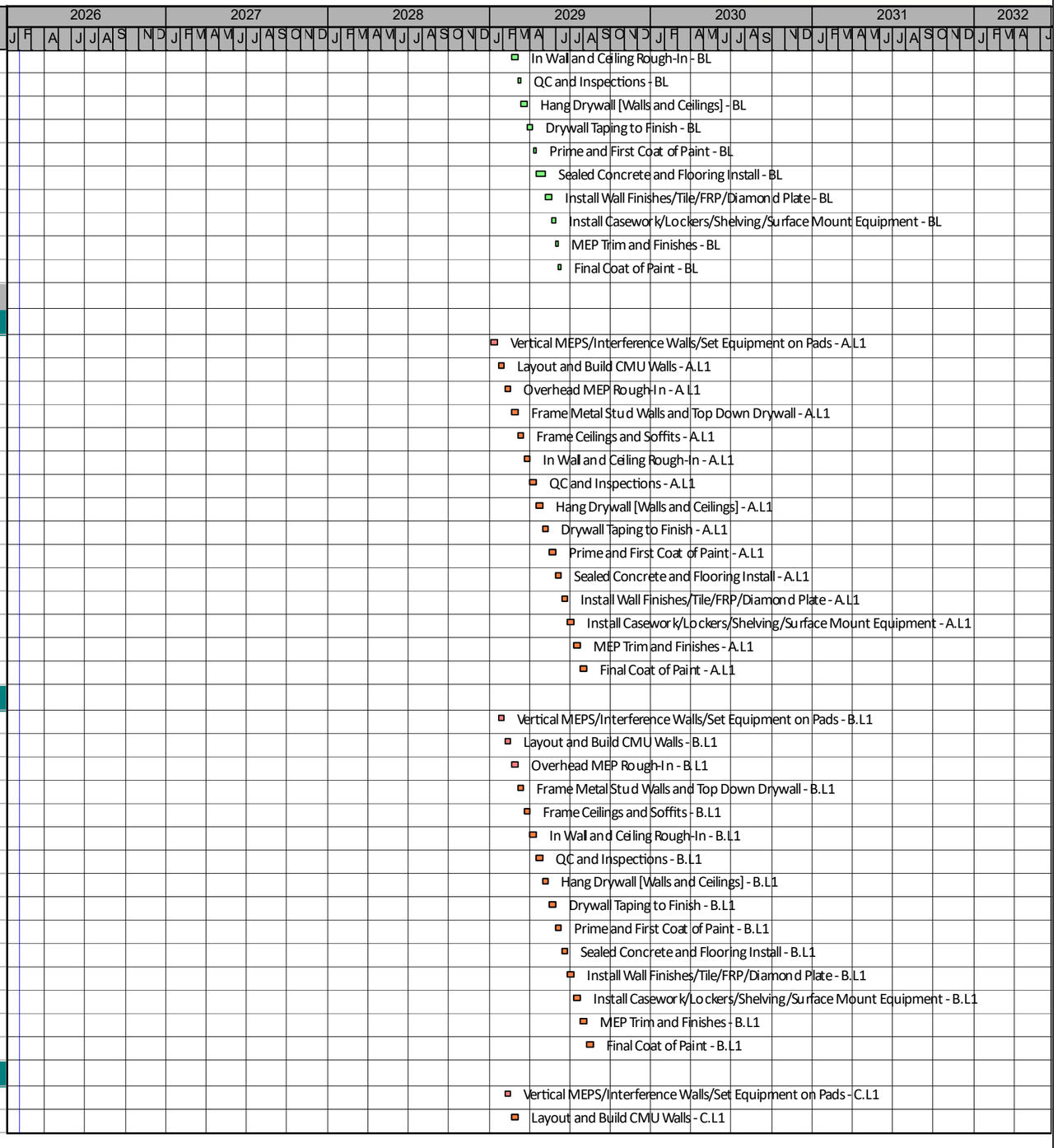
#	Activity Name	OD	Start	Finish
868	Curtainwall Installation - 17th Street Facade	75	Jan-22-29	May-07-29
869	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - 17th Street Facade	40	Jan-29-29	Mar-26-29
870	Install Storefront System - 17th Street Facade	5	Mar-20-29	Mar-26-29
871	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - 17th Street Facade	10	Mar-27-29	Apr-09-29
872	Install Paternized Metal Panel - 17th Street Facade	15	Apr-10-29	Apr-30-29
873	Install Metal Perforated Panels - 17th Street Facade	20	May-01-29	May-29-29
874	Complete Caulking - 17th Street Facade	20	May-30-29	Jun-26-29
875	**Hampshire St Facade**	140	Jan-22-29	Aug-08-29
876	Waterproof Slab Edges/Columns (To Bus FL 4) - Hampshire Street Facade	40	Jan-22-29	Mar-19-29
877	Install Slab Edge/Column Metal Panels (To Bus FL 4) - Hampshire Street Facade	15	Mar-20-29	Apr-09-29
878	Curtainwall Installation - Hampshire Street Facade	40	Apr-10-29	Jun-05-29
879	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - Hampshire Street Facade	40	Apr-10-29	Jun-05-29
880	Install Perforated Metal Panels - Hampshire Street Facade	55	Apr-24-29	Jul-11-29
881	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - Hampshire Street Facade	15	Jun-06-29	Jun-26-29
882	Complete Caulking - Hampshire Street Facade	20	Jul-12-29	Aug-08-29
883	**Mariposa Facade**	95	Feb-27-29	Jul-11-29
884	Waterproof Slab Edges/Columns (To Bus FL 4) - Mariposa Street Facade	40	Feb-27-29	Apr-23-29
885	Curtainwall Install (To Bus FL 4) - Mariposa Street Facade	30	Mar-20-29	Apr-30-29
886	Install Slab Edge/Column Metal Panels (To Bus FL 4) - Mariposa Street Facade	15	Apr-24-29	May-14-29
887	Waterproof Slab Edges & Columns (Thru Bus Roof Level) - Mariposa Street Facade	20	Apr-24-29	May-21-29
888	Install Slab Edge/Column Metal Panels (Thru Bus Roof Level) - Mariposa Street Facade	15	May-22-29	Jun-12-29
889	Curtainwall Install (Thru Bus Roof Level) - Mariposa Street Facade	25	Jun-06-29	Jul-11-29
890	Complete Caulking - Mariposa Street Facade	20	Jun-13-29	Jul-11-29
891	**Roofing System**	100	Jan-29-29	Jun-19-29
892	Concrete Cure Time - Roof	20	Jan-29-29	Feb-26-29
893	Area 1 - Waterproofing - Roof	20	Feb-27-29	Mar-26-29
894	Area 2 - Waterproofing - Roof	20	Mar-06-29	Apr-02-29
895	Area 3 - Waterproofing - Roof	20	Mar-13-29	Apr-09-29
896	Area 4 - Waterproofing - Roof	20	Mar-20-29	Apr-16-29
897	Area 5 - Waterproofing - Roof	20	Mar-27-29	Apr-23-29
898	Area 6 - Waterproofing - Roof	20	Apr-03-29	Apr-30-29
899	Area 7 - Waterproofing - Roof	20	Apr-10-29	May-07-29
900	Area 8 - Waterproofing - Roof	20	Apr-17-29	May-14-29
901	Area 9 - Waterproofing - Roof	20	Apr-24-29	May-21-29
902	Area 10 - Waterproofing - Roof	20	May-01-29	May-29-29
903	Area 11 - Waterproofing - Roof	20	May-08-29	Jun-05-29
904	Area 12 - Waterproofing - Roof	20	May-15-29	Jun-12-29
905	Area 13 - Waterproofing - Roof	20	May-22-29	Jun-19-29
906	**Interior Construction**	290	Dec-19-28	Feb-15-30
907	**Basement Level**	120	Dec-19-28	Jun-12-29
908	Vertical MEPS/Interference Walls/Set Equipment on Pads - BL	10	Dec-19-28	Jan-04-29
909	Layout and Build CMU Walls - BL	10	Jan-05-29	Jan-19-29
910	Overhead MEP Rough-In - BL	10	Jan-22-29	Feb-02-29
911	Frame Metal Stud Walls and Top Down Drywall - BL	5	Feb-05-29	Feb-09-29
912	Frame Ceilings and Soffits - BL	5	Feb-12-29	Feb-16-29



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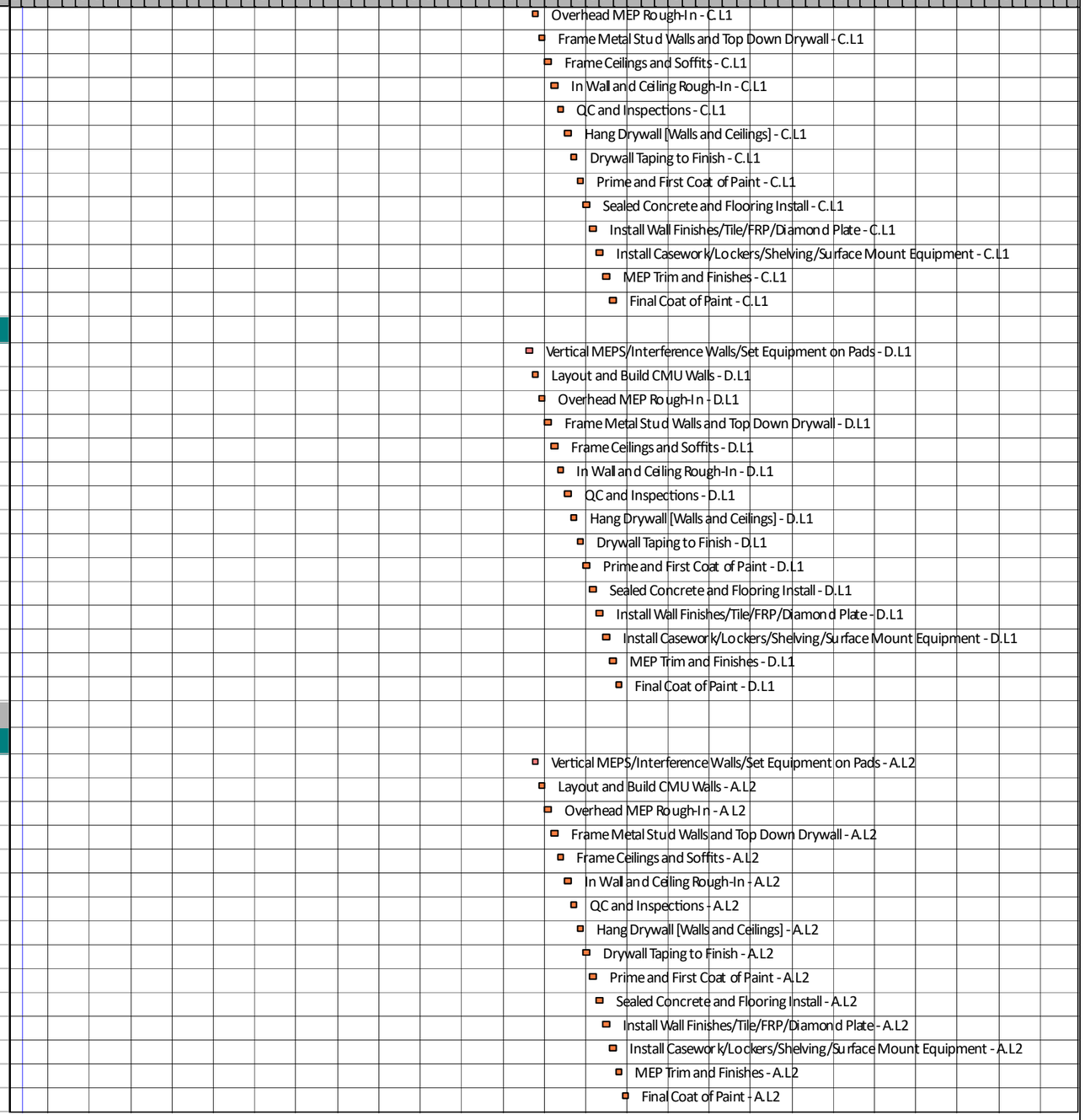
#	Activity Name	OD	Start	Finish
913	In Wall and Ceiling Rough-In - BL	10	Feb-20-29	Mar-05-29
914	QC and Inspections - BL	5	Mar-06-29	Mar-12-29
915	Hang Drywall [Walls and Ceilings] - BL	10	Mar-13-29	Mar-26-29
916		10	Mar-27-29	Apr-09-29
917	Prime and First Coat of Paint - BL	5	Apr-10-29	Apr-16-29
918	Sealed Concrete and Flooring Install - BL	15	Apr-17-29	May-07-29
919	Install Wall Finishes/Tile/FRP/Diamond Plate - BL	10	May-08-29	May-21-29
920	Install Casework/Lockers/Shelving/Surface Mount Equipment - BL	5	May-22-29	May-29-29
921	MEP Trim and Finishes - BL	5	May-30-29	Jun-05-29
922	Final Coat of Paint - BL	5	Jun-06-29	Jun-12-29
923	**Ground Level**	180	Jan-05-29	Sep-20-29
924	**Area A.L1**	150	Jan-05-29	Aug-08-29
925	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L1	10	Jan-05-29	Jan-19-29
926	Layout and Build CMU Walls - A.L1	10	Jan-22-29	Feb-02-29
927	Overhead MEP Rough-In - A.L1	10	Feb-05-29	Feb-16-29
928	Frame Metal Stud Walls and Top Down Drywall - A.L1	10	Feb-20-29	Mar-05-29
929	Frame Ceilings and Soffits - A.L1	10	Mar-06-29	Mar-19-29
930	In Wall and Ceiling Rough-In - A.L1	10	Mar-20-29	Apr-02-29
931	QC and Inspections - A.L1	10	Apr-03-29	Apr-16-29
932	Hang Drywall [Walls and Ceilings] - A.L1	10	Apr-17-29	Apr-30-29
933	Drywall Taping to Finish - A.L1	10	May-01-29	May-14-29
934	Prime and First Coat of Paint - A.L1	10	May-15-29	May-29-29
935	Sealed Concrete and Flooring Install - A.L1	10	May-30-29	Jun-12-29
936	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L1	10	Jun-13-29	Jun-26-29
937	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L1	10	Jun-27-29	Jul-11-29
938	MEP Trim and Finishes - A.L1	10	Jul-12-29	Jul-25-29
939	Final Coat of Paint - A.L1	10	Jul-26-29	Aug-08-29
940	**Area B.L1**	150	Jan-22-29	Aug-22-29
941	Vertical MEPS/Interference Walls/Set Equipment on Pads - B.L1	10	Jan-22-29	Feb-02-29
942	Layout and Build CMU Walls - B.L1	10	Feb-05-29	Feb-16-29
943	Overhead MEP Rough-In - B.L1	10	Feb-20-29	Mar-05-29
944	Frame Metal Stud Walls and Top Down Drywall - B.L1	10	Mar-06-29	Mar-19-29
945	Frame Ceilings and Soffits - B.L1	10	Mar-20-29	Apr-02-29
946	In Wall and Ceiling Rough-In - B.L1	10	Apr-03-29	Apr-16-29
947	QC and Inspections - B.L1	10	Apr-17-29	Apr-30-29
948	Hang Drywall [Walls and Ceilings] - B.L1	10	May-01-29	May-14-29
949	Drywall Taping to Finish - B.L1	10	May-15-29	May-29-29
950	Prime and First Coat of Paint - B.L1	10	May-30-29	Jun-12-29
951	Sealed Concrete and Flooring Install - B.L1	10	Jun-13-29	Jun-26-29
952	Install Wall Finishes/Tile/FRP/Diamond Plate - B.L1	10	Jun-27-29	Jul-11-29
953	Install Casework/Lockers/Shelving/Surface Mount Equipment - B.L1	10	Jul-12-29	Jul-25-29
954	MEP Trim and Finishes - B.L1	10	Jul-26-29	Aug-08-29
955	Final Coat of Paint - B.L1	10	Aug-09-29	Aug-22-29
956	**Area C.L1**	150	Feb-05-29	Sep-06-29
957	Vertical MEPS/Interference Walls/Set Equipment on Pads - C.L1	10	Feb-05-29	Feb-16-29
958	Layout and Build CMU Walls - C.L1	10	Feb-20-29	Mar-05-29



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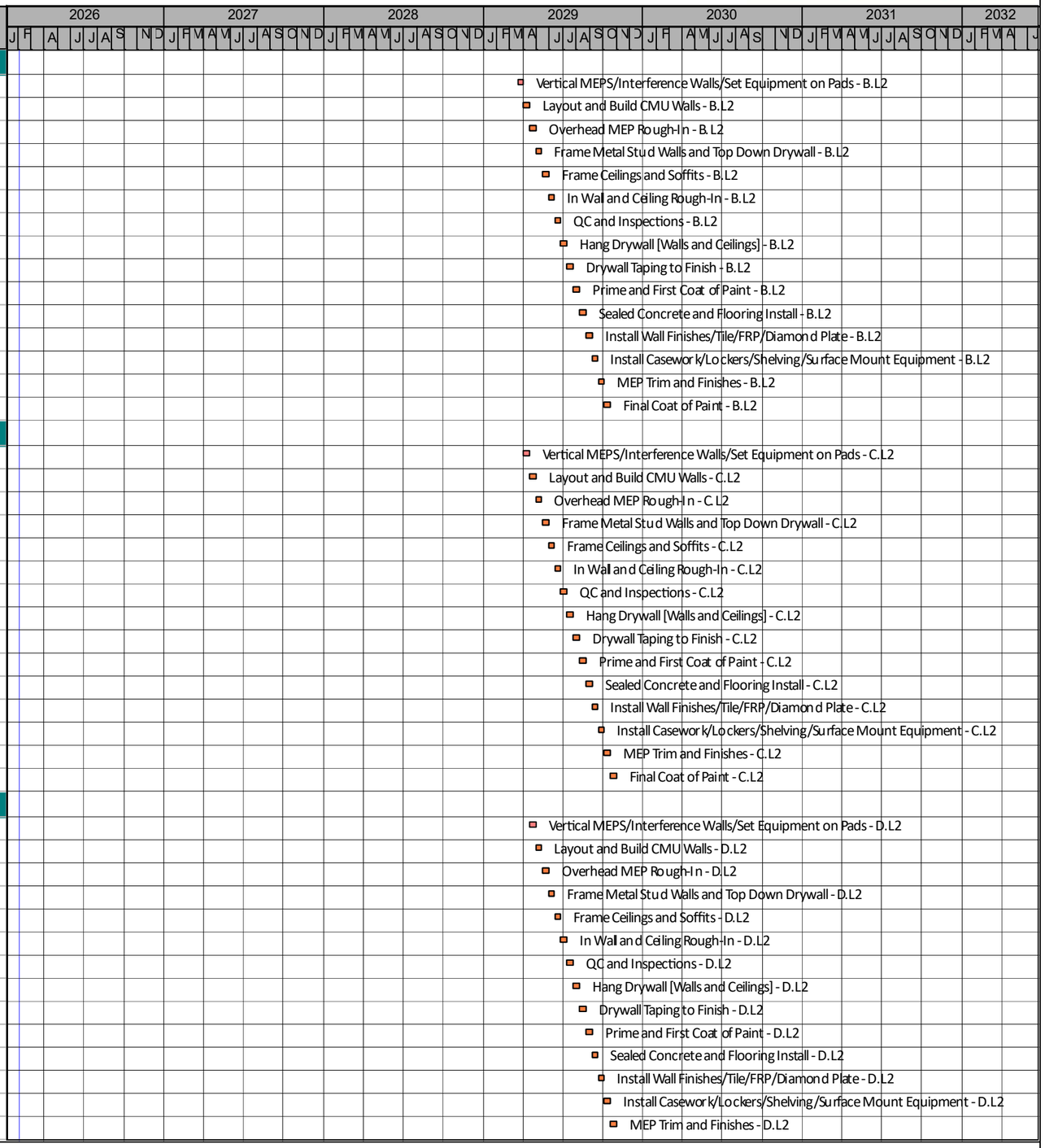
#	Activity Name	OD	Start	Finish
959	Overhead MEP Rough-In - C.L1	10	Mar-06-29	Mar-19-29
960	Frame Metal Stud Walls and Top Down Drywall - C.L1	10	Mar-20-29	Apr-02-29
961	Frame Ceilings and Soffits - C.L1	10	Apr-03-29	Apr-16-29
962	In Wall and Ceiling Rough-In - C.L1	10	Apr-17-29	Apr-30-29
963	QC and Inspections - C.L1	10	May-01-29	May-14-29
964	Hang Drywall [Walls and Ceilings] - C.L1	10	May-15-29	May-29-29
965	Drywall Taping to Finish - C.L1	10	May-30-29	Jun-12-29
966	Prime and First Coat of Paint - C.L1	10	Jun-13-29	Jun-26-29
967	Sealed Concrete and Flooring Install - C.L1	10	Jun-27-29	Jul-11-29
968	Install Wall Finishes/Tile/FRP/Diamond Plate - C.L1	10	Jul-12-29	Jul-25-29
969	Install Casework/Lockers/Shelving/Surface Mount Equipment - C.L1	10	Jul-26-29	Aug-08-29
970	MEP Trim and Finishes - C.L1	10	Aug-09-29	Aug-22-29
971	Final Coat of Paint - C.L1	10	Aug-23-29	Sep-06-29
972	**Area D.L1**	150	Feb-20-29	Sep-20-29
973	Vertical MEPS/Interference Walls/Set Equipment on Pads - D.L1	10	Feb-20-29	Mar-05-29
974	Layout and Build CMU Walls - D.L1	10	Mar-06-29	Mar-19-29
975	Overhead MEP Rough-In - D.L1	10	Mar-20-29	Apr-02-29
976	Frame Metal Stud Walls and Top Down Drywall - D.L1	10	Apr-03-29	Apr-16-29
977	Frame Ceilings and Soffits - D.L1	10	Apr-17-29	Apr-30-29
978	In Wall and Ceiling Rough-In - D.L1	10	May-01-29	May-14-29
979	QC and Inspections - D.L1	10	May-15-29	May-29-29
980	Hang Drywall [Walls and Ceilings] - D.L1	10	May-30-29	Jun-12-29
981	Drywall Taping to Finish - D.L1	10	Jun-13-29	Jun-26-29
982	Prime and First Coat of Paint - D.L1	10	Jun-27-29	Jul-11-29
983	Sealed Concrete and Flooring Install - D.L1	10	Jul-12-29	Jul-25-29
984	Install Wall Finishes/Tile/FRP/Diamond Plate - D.L1	10	Jul-26-29	Aug-08-29
985	Install Casework/Lockers/Shelving/Surface Mount Equipment - D.L1	10	Aug-09-29	Aug-22-29
986	MEP Trim and Finishes - D.L1	10	Aug-23-29	Sep-06-29
987	Final Coat of Paint - D.L1	10	Sep-07-29	Sep-20-29
988	**Level 2**	190	Mar-06-29	Dec-03-29
989	**Area A.L2**	150	Mar-06-29	Oct-04-29
990	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L2	10	Mar-06-29	Mar-19-29
991	Layout and Build CMU Walls - A.L2	10	Mar-20-29	Apr-02-29
992	Overhead MEP Rough-In - A.L2	10	Apr-03-29	Apr-16-29
993	Frame Metal Stud Walls and Top Down Drywall - A.L2	10	Apr-17-29	Apr-30-29
994	Frame Ceilings and Soffits - A.L2	10	May-01-29	May-14-29
995	In Wall and Ceiling Rough-In - A.L2	10	May-15-29	May-29-29
996	QC and Inspections - A.L2	10	May-30-29	Jun-12-29
997	Hang Drywall [Walls and Ceilings] - A.L2	10	Jun-13-29	Jun-26-29
998	Drywall Taping to Finish - A.L2	10	Jun-27-29	Jul-11-29
999	Prime and First Coat of Paint - A.L2	10	Jul-12-29	Jul-25-29
1000	Sealed Concrete and Flooring Install - A.L2	10	Jul-26-29	Aug-08-29
1001	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L2	10	Aug-09-29	Aug-22-29
1002	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L2	10	Aug-23-29	Sep-06-29
1003	MEP Trim and Finishes - A.L2	10	Sep-07-29	Sep-20-29
1004	Final Coat of Paint - A.L2	10	Sep-21-29	Oct-04-29



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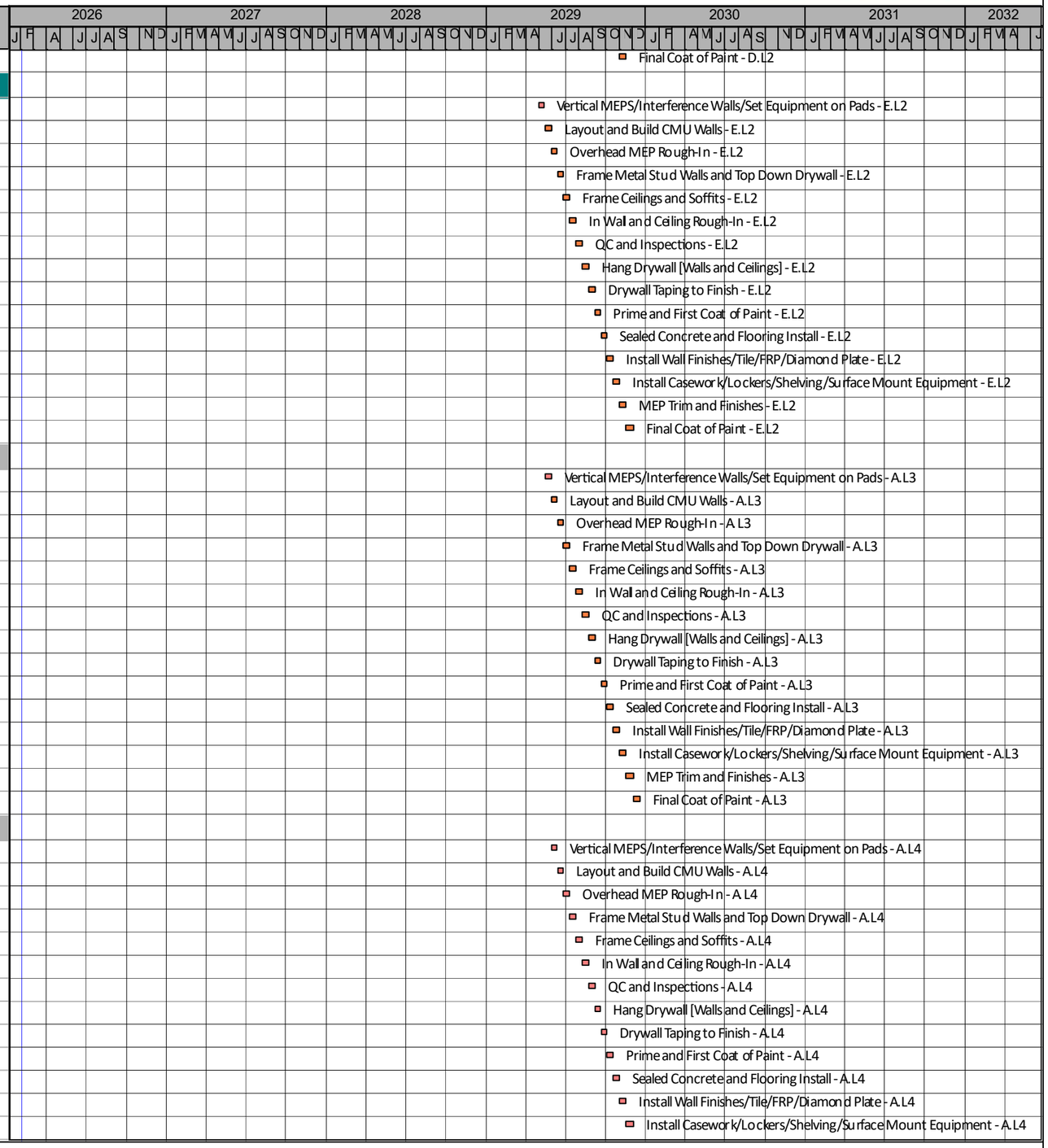
#	Activity Name	OD	Start	Finish
1005	**Area B.L2**	150	Mar-20-29	Oct-18-29
1006	Vertical MEPS/Interference Walls/Set Equipment on Pads - B.L2	10	Mar-20-29	Apr-02-29
1007	Layout and Build CMU Walls - B.L2	10	Apr-03-29	Apr-16-29
1008	Overhead MEP Rough-In - B.L2	10	Apr-17-29	Apr-30-29
1009	Frame Metal Stud Walls and Top Down Drywall - B.L2	10	May-01-29	May-14-29
1010	Frame Ceilings and Soffits - B.L2	10	May-15-29	May-29-29
1011	In Wall and Ceiling Rough-In - B.L2	10	May-30-29	Jun-12-29
1012	QC and Inspections - B.L2	10	Jun-13-29	Jun-26-29
1013	Hang Drywall [Walls and Ceilings] - B.L2	10	Jun-27-29	Jul-11-29
1014	Drywall Taping to Finish - B.L2	10	Jul-12-29	Jul-25-29
1015	Prime and First Coat of Paint - B.L2	10	Jul-26-29	Aug-08-29
1016	Sealed Concrete and Flooring Install - B.L2	10	Aug-09-29	Aug-22-29
1017	Install Wall Finishes/Tile/FRP/Diamond Plate - B.L2	10	Aug-23-29	Sep-06-29
1018	Install Casework/Lockers/Shelving/Surface Mount Equipment - B.L2	10	Sep-07-29	Sep-20-29
1019	MEP Trim and Finishes - B.L2	10	Sep-21-29	Oct-04-29
1020	Final Coat of Paint - B.L2	10	Oct-05-29	Oct-18-29
1021	**Area C.L2**	150	Apr-03-29	Nov-01-29
1022	Vertical MEPS/Interference Walls/Set Equipment on Pads - C.L2	10	Apr-03-29	Apr-16-29
1023	Layout and Build CMU Walls - C.L2	10	Apr-17-29	Apr-30-29
1024	Overhead MEP Rough-In - C.L2	10	May-01-29	May-14-29
1025	Frame Metal Stud Walls and Top Down Drywall - C.L2	10	May-15-29	May-29-29
1026	Frame Ceilings and Soffits - C.L2	10	May-30-29	Jun-12-29
1027	In Wall and Ceiling Rough-In - C.L2	10	Jun-13-29	Jun-26-29
1028	QC and Inspections - C.L2	10	Jun-27-29	Jul-11-29
1029	Hang Drywall [Walls and Ceilings] - C.L2	10	Jul-12-29	Jul-25-29
1030	Drywall Taping to Finish - C.L2	10	Jul-26-29	Aug-08-29
1031	Prime and First Coat of Paint - C.L2	10	Aug-09-29	Aug-22-29
1032	Sealed Concrete and Flooring Install - C.L2	10	Aug-23-29	Sep-06-29
1033	Install Wall Finishes/Tile/FRP/Diamond Plate - C.L2	10	Sep-07-29	Sep-20-29
1034	Install Casework/Lockers/Shelving/Surface Mount Equipment - C.L2	10	Sep-21-29	Oct-04-29
1035	MEP Trim and Finishes - C.L2	10	Oct-05-29	Oct-18-29
1036	Final Coat of Paint - C.L2	10	Oct-19-29	Nov-01-29
1037	**Area D.L2**	150	Apr-17-29	Nov-15-29
1038	Vertical MEPS/Interference Walls/Set Equipment on Pads - D.L2	10	Apr-17-29	Apr-30-29
1039	Layout and Build CMU Walls - D.L2	10	May-01-29	May-14-29
1040	Overhead MEP Rough-In - D.L2	10	May-15-29	May-29-29
1041	Frame Metal Stud Walls and Top Down Drywall - D.L2	10	May-30-29	Jun-12-29
1042	Frame Ceilings and Soffits - D.L2	10	Jun-13-29	Jun-26-29
1043	In Wall and Ceiling Rough-In - D.L2	10	Jun-27-29	Jul-11-29
1044	QC and Inspections - D.L2	10	Jul-12-29	Jul-25-29
1045	Hang Drywall [Walls and Ceilings] - D.L2	10	Jul-26-29	Aug-08-29
1046	Drywall Taping to Finish - D.L2	10	Aug-09-29	Aug-22-29
1047	Prime and First Coat of Paint - D.L2	10	Aug-23-29	Sep-06-29
1048	Sealed Concrete and Flooring Install - D.L2	10	Sep-07-29	Sep-20-29
1049	Install Wall Finishes/Tile/FRP/Diamond Plate - D.L2	10	Sep-21-29	Oct-04-29
1050	Install Casework/Lockers/Shelving/Surface Mount Equipment - D.L2	10	Oct-05-29	Oct-18-29
1051	MEP Trim and Finishes - D.L2	10	Oct-19-29	Nov-01-29



Potrero Yard Modernization
Final Initial Schedule

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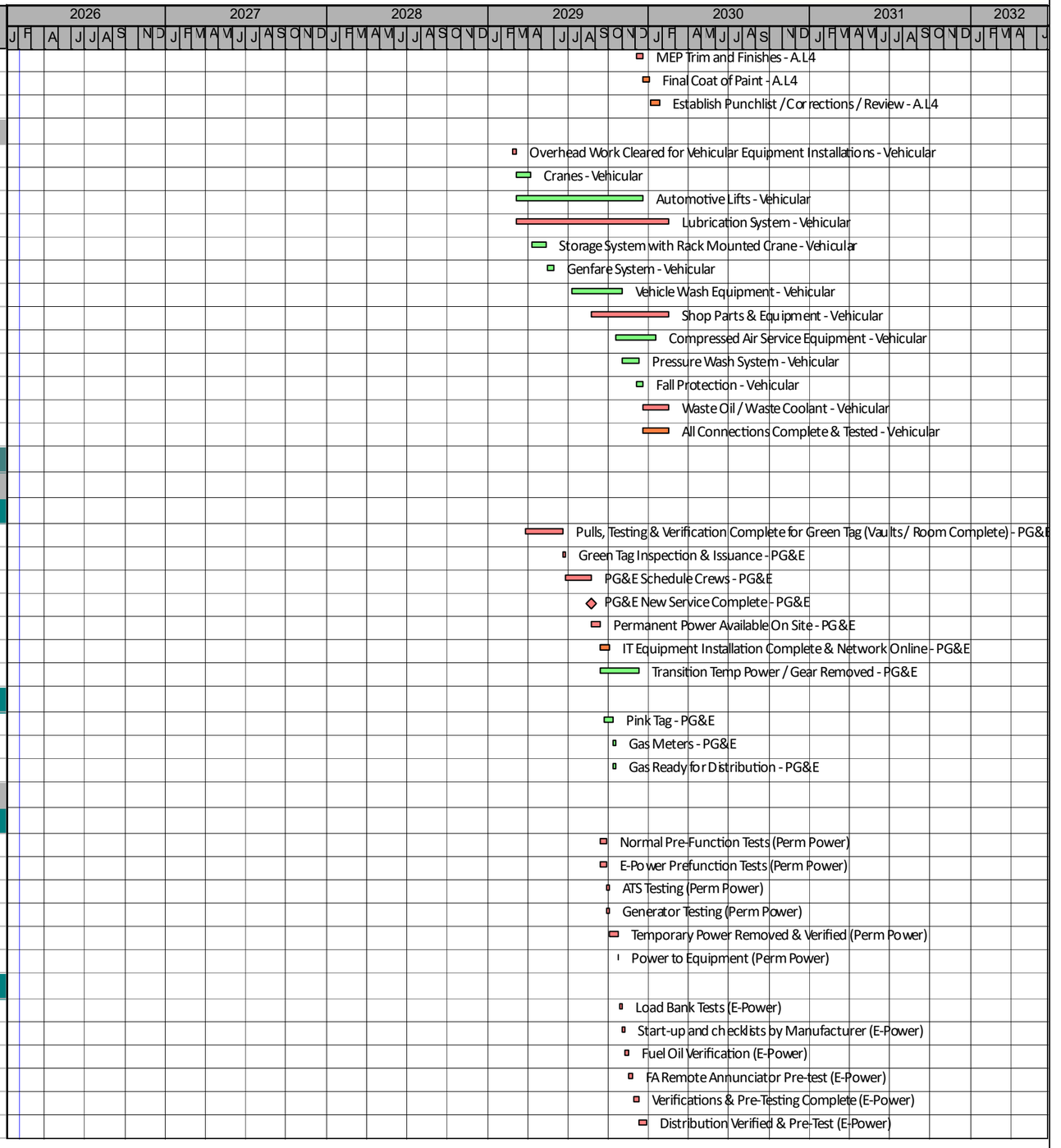
#	Activity Name	OD	Start	Finish
1052	Final Coat of Paint - D.L2	10	Nov-02-29	Nov-15-29
1053	**Area E.L2**	150	May-01-29	Dec-03-29
1054	Vertical MEPS/Interference Walls/Set Equipment on Pads - E.L2	10	May-01-29	May-14-29
1055	Layout and Build CMU Walls - E.L2	10	May-15-29	May-29-29
1056	Overhead MEP Rough-In - E.L2	10	May-30-29	Jun-12-29
1057	Frame Metal Stud Walls and Top Down Drywall - E.L2	10	Jun-13-29	Jun-26-29
1058	Frame Ceilings and Soffits - E.L2	10	Jun-27-29	Jul-11-29
1059	In Wall and Ceiling Rough-In - E.L2	10	Jul-12-29	Jul-25-29
1060	QC and Inspections - E.L2	10	Jul-26-29	Aug-08-29
1061	Hang Drywall [Walls and Ceilings] - E.L2	10	Aug-09-29	Aug-22-29
1062	Drywall Taping to Finish - E.L2	10	Aug-23-29	Sep-06-29
1063	Prime and First Coat of Paint - E.L2	10	Sep-07-29	Sep-20-29
1064	Sealed Concrete and Flooring Install - E.L2	10	Sep-21-29	Oct-04-29
1065	Install Wall Finishes/Tile/FRP/Diamond Plate - E.L2	10	Oct-05-29	Oct-18-29
1066	Install Casework/Lockers/Shelving/Surface Mount Equipment - E.L2	10	Oct-19-29	Nov-01-29
1067	MEP Trim and Finishes - E.L2	10	Nov-02-29	Nov-15-29
1068	Final Coat of Paint - E.L2	10	Nov-16-29	Dec-03-29
1069	**Level 3**	150	May-15-29	Dec-17-29
1070	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L3	10	May-15-29	May-29-29
1071	Layout and Build CMU Walls - A.L3	10	May-30-29	Jun-12-29
1072	Overhead MEP Rough-In - A.L3	10	Jun-13-29	Jun-26-29
1073	Frame Metal Stud Walls and Top Down Drywall - A.L3	10	Jun-27-29	Jul-11-29
1074	Frame Ceilings and Soffits - A.L3	10	Jul-12-29	Jul-25-29
1075	In Wall and Ceiling Rough-In - A.L3	10	Jul-26-29	Aug-08-29
1076	QC and Inspections - A.L3	10	Aug-09-29	Aug-22-29
1077	Hang Drywall [Walls and Ceilings] - A.L3	10	Aug-23-29	Sep-06-29
1078	Drywall Taping to Finish - A.L3	10	Sep-07-29	Sep-20-29
1079	Prime and First Coat of Paint - A.L3	10	Sep-21-29	Oct-04-29
1080	Sealed Concrete and Flooring Install - A.L3	10	Oct-05-29	Oct-18-29
1081	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L3	10	Oct-19-29	Nov-01-29
1082	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L3	10	Nov-02-29	Nov-15-29
1083	MEP Trim and Finishes - A.L3	10	Nov-16-29	Dec-03-29
1084	Final Coat of Paint - A.L3	10	Dec-04-29	Dec-17-29
1085	**Level 4**	165	May-30-29	Jan-25-30
1086	Vertical MEPS/Interference Walls/Set Equipment on Pads - A.L4	10	May-30-29	Jun-12-29
1087	Layout and Build CMU Walls - A.L4	10	Jun-13-29	Jun-26-29
1088	Overhead MEP Rough-In - A.L4	10	Jun-27-29	Jul-11-29
1089	Frame Metal Stud Walls and Top Down Drywall - A.L4	10	Jul-12-29	Jul-25-29
1090	Frame Ceilings and Soffits - A.L4	10	Jul-26-29	Aug-08-29
1091	In Wall and Ceiling Rough-In - A.L4	10	Aug-09-29	Aug-22-29
1092	QC and Inspections - A.L4	10	Aug-23-29	Sep-06-29
1093	Hang Drywall [Walls and Ceilings] - A.L4	10	Sep-07-29	Sep-20-29
1094	Drywall Taping to Finish - A.L4	10	Sep-21-29	Oct-04-29
1095	Prime and First Coat of Paint - A.L4	10	Oct-05-29	Oct-18-29
1096	Sealed Concrete and Flooring Install - A.L4	10	Oct-19-29	Nov-01-29
1097	Install Wall Finishes/Tile/FRP/Diamond Plate - A.L4	10	Nov-02-29	Nov-15-29
1098	Install Casework/Lockers/Shelving/Surface Mount Equipment - A.L4	10	Nov-16-29	Dec-03-29



Potrero Yard Modernization
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#	Activity Name	OD	Start	Finish
1099	MEP Trim and Finishes - A.L4	10	Dec-04-29	Dec-17-29
1100	Final Coat of Paint - A.L4	10	Dec-18-29	Jan-03-30
1101	Establish Punchlist / Corrections / Review - A.L4	15	Jan-04-30	Jan-25-30
1102	**Vehicular**	245	Feb-27-29	Feb-15-30
1103	Overhead Work Cleared for Vehicular Equipment Installations - Vehicular	5	Feb-27-29	Mar-05-29
1104	Cranes - Vehicular	25	Mar-06-29	Apr-09-29
1105	Automotive Lifts - Vehicular	200	Mar-06-29	Dec-17-29
1106	Lubrication System - Vehicular	240	Mar-06-29	Feb-15-30
1107	Storage System with Rack Mounted Crane - Vehicular	25	Apr-10-29	May-14-29
1108	Genfare System - Vehicular	10	May-15-29	May-29-29
1109	Vehicle Wash Equipment - Vehicular	80	Jul-12-29	Nov-01-29
1110	Shop Parts & Equipment - Vehicular	120	Aug-23-29	Feb-15-30
1111	Compressed Air Service Equipment - Vehicular	60	Oct-19-29	Jan-17-30
1112	Pressure Wash System - Vehicular	25	Nov-02-29	Dec-10-29
1113	Fall Protection - Vehicular	10	Dec-04-29	Dec-17-29
1114	Waste Oil / Waste Coolant - Vehicular	40	Dec-18-29	Feb-15-30
1115	All Connections Complete & Tested - Vehicular	40	Dec-18-29	Feb-15-30
1116	**Start-Up & Commissioning**	440	Mar-27-29	Dec-23-30
1117	**Commissioning: PG&E**	180	Mar-27-29	Dec-10-29
1118	**Permanent Power & Network**	180	Mar-27-29	Dec-10-29
1119	Pulls, Testing & Verification Complete for Green Tag (Vaults / Room Complete) - PG&E	60	Mar-27-29	Jun-19-29
1120	Green Tag Inspection & Issuance - PG&E	5	Jun-20-29	Jun-26-29
1121	PG&E Schedule Crews - PG&E	40	Jun-27-29	Aug-22-29
1122	PG&E New Service Complete - PG&E	0		Aug-22-29
1123	Permanent Power Available On Site - PG&E	15	Aug-23-29	Sep-13-29
1124	IT Equipment Installation Complete & Network Online - PG&E	15	Sep-14-29	Oct-04-29
1125	Transition Temp Power / Gear Removed - PG&E	60	Sep-14-29	Dec-10-29
1126	**Natural Gas (Pending TR Equipment Reference)**	20	Sep-21-29	Oct-18-29
1127	Pink Tag - PG&E	15	Sep-21-29	Oct-11-29
1128	Gas Meters - PG&E	5	Oct-12-29	Oct-18-29
1129	Gas Ready for Distribution - PG&E	5	Oct-12-29	Oct-18-29
1130	**Commissioning: Electrical**	90	Sep-14-29	Jan-25-30
1131	**Electrical Distribution**	30	Sep-14-29	Oct-25-29
1132	Normal Pre-Function Tests (Perm Power)	10	Sep-14-29	Sep-27-29
1133	E-Power Prefunction Tests (Perm Power)	10	Sep-14-29	Sep-27-29
1134	ATS Testing (Perm Power)	5	Sep-28-29	Oct-04-29
1135	Generator Testing (Perm Power)	5	Sep-28-29	Oct-04-29
1136	Temporary Power Removed & Verified (Perm Power)	15	Oct-05-29	Oct-25-29
1137	Power to Equipment (Perm Power)	1	Oct-25-29	Oct-25-29
1138	**Generators**	40	Oct-26-29	Dec-26-29
1139	Load Bank Tests (E-Power)	5	Oct-26-29	Nov-01-29
1140	Start-up and checklists by Manufacturer (E-Power)	5	Nov-02-29	Nov-08-29
1141	Fuel Oil Verification (E-Power)	5	Nov-09-29	Nov-15-29
1142	FA Remote Annunciator Pre-test (E-Power)	5	Nov-16-29	Nov-26-29
1143	Verifications & Pre-Testing Complete (E-Power)	10	Nov-27-29	Dec-10-29
1144	Distribution Verified & Pre-Test (E-Power)	10	Dec-11-29	Dec-26-29



Potrero Yard Modernization
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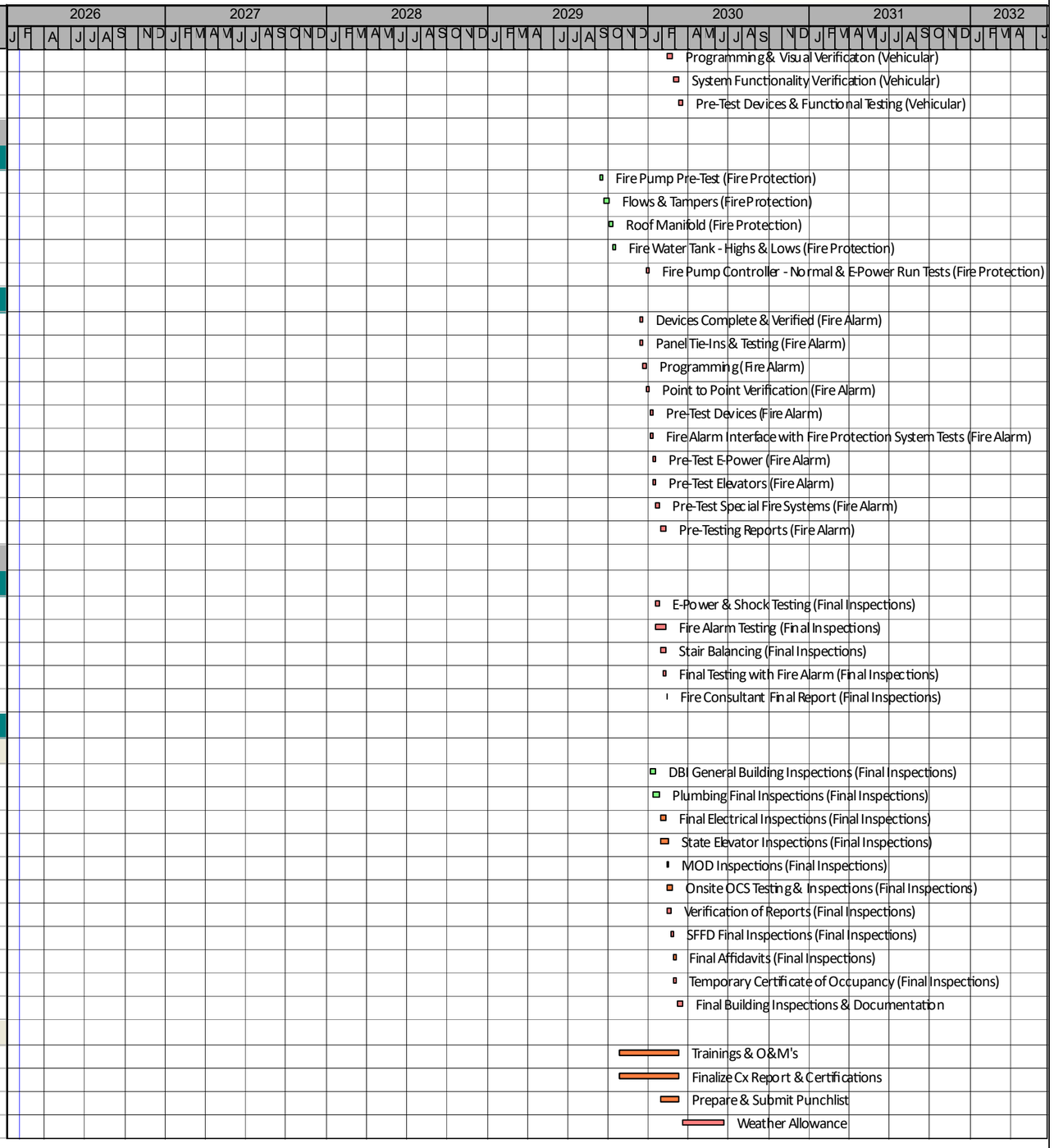
#	Activity Name	OD	Start	Finish
1145	**Lighting Control**	25	Dec-18-29	Jan-25-30
1146	Point to Point Testing (Lighting Control)	5	Dec-18-29	Dec-26-29
1147	Programming (Lighting Control)	10	Dec-27-29	Jan-10-30
1148	Functional Testing (Lighting Control)	10	Jan-11-30	Jan-25-30
1149	Fire Alarm Interface Testing (Lighting Control)	5	Jan-18-30	Jan-25-30
1150	**Commissioning: Plumbing**	60	Oct-12-29	Jan-10-30
1151	**Domestic Water**	60	Oct-12-29	Jan-10-30
1152	POC, Power and Controls Complete (DW)	5	Oct-12-29	Oct-18-29
1153	Booster Pump (DW)	5	Oct-19-29	Oct-25-29
1154	Back Flow Preventer Complete (DW)	5	Oct-19-29	Oct-25-29
1155	Make-Up Water to MEPS Equipment (DW)	10	Oct-26-29	Nov-08-29
1156	Chlorination & Bacterial Tests (DW)	15	Dec-18-29	Jan-10-30
1157	**Storm / Sewer**	10	Oct-19-29	Nov-01-29
1158	PCO, Power & Controls To Laterals Complete (Storm/SS)	5	Oct-19-29	Oct-25-29
1159	Pre-Testing (Storm/SS)	5	Oct-26-29	Nov-01-29
1160	Functional Testing (Storm/SS)	5	Oct-26-29	Nov-01-29
1161	**Commissioning: Fuel Oil**	25	Sep-21-29	Oct-25-29
1162	Point to Point Verification & Controls (Fuel Oil)	5	Sep-21-29	Sep-27-29
1163	Leak Detecting Pre-Testing (Fuel Oil)	5	Sep-28-29	Oct-04-29
1164	Fill Panel Pre-Testing (Fuel Oil)	5	Oct-05-29	Oct-11-29
1165	Interface with Fire Alarm Pre-Testing (Fuel Oil)	5	Oct-12-29	Oct-18-29
1166	Pre-Testing with Generators (Fuel Oil)	10	Oct-12-29	Oct-25-29
1167	**Commissioning: Mechanical**	60	Oct-26-29	Jan-25-30
1168	**Boilers & Pumps**	40	Oct-26-29	Dec-26-29
1169	Terminate Electrical & BMS (Mech-Boilers)	5	Oct-26-29	Nov-01-29
1170	Clearing & Troubleshooting (Mech-Boilers)	10	Nov-02-29	Nov-15-29
1171	Pre-Start Inspections (Mech-Boilers)	5	Nov-09-29	Nov-15-29
1172	Fill / Flush Boiler & Pumps (Mech-Boilers)	15	Nov-16-29	Dec-10-29
1173	Factory Start-up (Mech-Boilers)	5	Dec-11-29	Dec-17-29
1174	Hot Water Functional Testing (Mech-Boilers)	5	Dec-18-29	Dec-26-29
1175	**Chillers**	40	Nov-02-29	Jan-03-30
1176	Terminate Electrical & BMS (Mech-Chillers)	5	Nov-02-29	Nov-08-29
1177	Clearing & Troubleshooting (Mech-Chillers)	10	Nov-09-29	Nov-26-29
1178	Pre-Start Inspections (Mech-Chillers)	5	Nov-16-29	Nov-26-29
1179	Fill/Flush Chillers & Pumps (Mech-Chillers)	15	Nov-27-29	Dec-17-29
1180	Factory Start-Up (Mech-Chillers)	5	Dec-18-29	Dec-26-29
1181	Chilled Water Functional Tests (Mech-Chillers)	5	Dec-27-29	Jan-03-30
1182	**AHU's & Exhaust**	30	Oct-26-29	Dec-10-29
1183	Terminate Electrical & BMS (Mech-AHUs)	5	Oct-26-29	Nov-01-29
1184	Clearing & Troubleshooting (Mech-AHUs)	10	Nov-02-29	Nov-15-29
1185	Start-Up & Functional Testing / Balance (Mech-AHUs)	15	Nov-16-29	Dec-10-29
1186	**Balancing (TAB)**	30	Dec-11-29	Jan-25-30
1187	Basement & Level 1 (Mech-TAB)	15	Dec-11-29	Jan-03-30
1188	Level 2 & 3 [SWING SHIFT] (Mech-TAB)	20	Dec-18-29	Jan-17-30
1189	Misc (As Applicable to FA Inspections) - TAB & Report [SWING SHIFT] (Mech-TAB)	15	Jan-04-30	Jan-25-30
1190	**Commissioning: Vehicular**	25	Feb-11-30	Mar-18-30



Potrero Yard Modernization
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#	Activity Name	OD	Start	Finish
1191	Programming & Visual Verificaton (Vehicular)	10	Feb-11-30	Feb-25-30
1192	System Functionality Verification (Vehicular)	10	Feb-26-30	Mar-11-30
1193	Pre-Test Devices & Functional Testing (Vehicular)	5	Mar-12-30	Mar-18-30
1194	**Commissioning: Fire Life Safety**	100	Sep-14-29	Feb-08-30
1195	**Fire Protection**	75	Sep-14-29	Jan-03-30
1196	Fire Pump Pre-Test (Fire Protection)	5	Sep-14-29	Sep-20-29
1197	Flows & Tampers (Fire Protection)	10	Sep-21-29	Oct-04-29
1198	Roof Manifold (Fire Protection)	5	Oct-05-29	Oct-11-29
1199	Fire Water Tank - Highs & Lows (Fire Protection)	5	Oct-12-29	Oct-18-29
1200	Fire Pump Controller - Normal & E-Power Run Tests (Fire Protection)	5	Dec-27-29	Jan-03-30
1201	**Fire Alarm**	39	Dec-12-29	Feb-08-30
1202	Devices Complete & Verified (Fire Alarm)	4	Dec-12-29	Dec-17-29
1203	Panel Tie-Ins & Testing (Fire Alarm)	4	Dec-12-29	Dec-17-29
1204	Programming (Fire Alarm)	5	Dec-18-29	Dec-26-29
1205	Point to Point Verification (Fire Alarm)	5	Dec-27-29	Jan-03-30
1206	Pre-Test Devices (Fire Alarm)	5	Jan-04-30	Jan-10-30
1207	Fire Alarm Interface with Fire Protection System Tests (Fire Alarm)	5	Jan-04-30	Jan-10-30
1208	Pre-Test E-Power (Fire Alarm)	5	Jan-11-30	Jan-17-30
1209	Pre-Test Elevators (Fire Alarm)	5	Jan-11-30	Jan-17-30
1210	Pre-Test Special Fire Systems (Fire Alarm)	5	Jan-18-30	Jan-25-30
1211	Pre-Testing Reports (Fire Alarm)	10	Jan-28-30	Feb-08-30
1212	**Commissioning: Final Inspections**	290	Oct-26-29	Dec-23-30
1213	**Testing & Reports**	17	Jan-18-30	Feb-12-30
1214	E-Power & Shock Testing (Final Inspections)	5	Jan-18-30	Jan-25-30
1215	Fire Alarm Testing (Final Inspections)	15	Jan-18-30	Feb-08-30
1216	Stair Balancing (Final Inspections)	10	Jan-28-30	Feb-08-30
1217	Final Testing with Fire Alarm (Final Inspections)	5	Feb-04-30	Feb-08-30
1218	Fire Consultant Final Report (Final Inspections)	2	Feb-11-30	Feb-12-30
1219	**Final Sign-offs**	290	Oct-26-29	Dec-23-30
1220	**Inspections**	50	Jan-04-30	Mar-18-30
1221	DBI General Building Inspections (Final Inspections)	10	Jan-04-30	Jan-17-30
1222	Plumbing Final Inspections (Final Inspections)	10	Jan-11-30	Jan-25-30
1223	Final Electrical Inspections (Final Inspections)	10	Jan-28-30	Feb-08-30
1224	State Elevator Inspections (Final Inspections)	15	Jan-28-30	Feb-15-30
1225	MOD Inspections (Final Inspections)	5	Feb-11-30	Feb-15-30
1226	Onsite OCS Testing & Inspections (Final Inspections)	10	Feb-11-30	Feb-25-30
1227	Verification of Reports (Final Inspections)	5	Feb-13-30	Feb-20-30
1228	SFFD Final Inspections (Final Inspections)	5	Feb-21-30	Feb-27-30
1229	Final Affidavits (Final Inspections)	5	Feb-26-30	Mar-04-30
1230	Temporary Certificate of Occupancy (Final Inspections)	5	Feb-28-30	Mar-06-30
1231	Final Building Inspections & Documentation	8	Mar-07-30	Mar-18-30
1232	**Substantial Completion**	166	Oct-26-29	Jun-26-30
1233	Trainings & O&M's	90	Oct-26-29	Mar-11-30
1234	Finalize Cx Report & Certifications	90	Oct-26-29	Mar-11-30
1235	Prepare & Submit Punchlist	30	Jan-28-30	Mar-11-30
1236	Weather Allowance	68	Mar-19-30	Jun-21-30



Project ID: WBPYM.P1
Print Date: Feb-17-26, 10:37

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#	Activity Name	OD	Start	Finish
1237	Occupancy & Substantial Completion	3	Jun-24-30	Jun-26-30
1238	**Final Completion**	124	Jun-27-30	Dec-23-30
1239	Punchlist Completion & Signed-off	60	Jun-27-30	Sep-20-30
1240	Attic Stock Delivered & Turned Over	60	Jun-27-30	Sep-20-30
1241	Warranties Submitted & Accepted	60	Jun-27-30	Sep-20-30
1242	Record Drawings Submitted & Accepted	100	Jun-27-30	Nov-15-30
1243	Final Completion	180	Jun-27-30	Dec-23-30

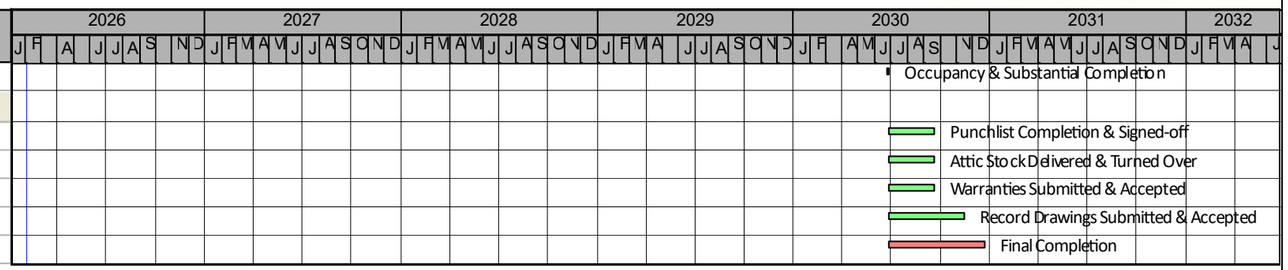


EXHIBIT 20

LIST OF KEY PERSONNEL

1. Project Director
2. Project Manager
3. Deputy Project Manager
4. Equity Member's Project Principal
5. Engineer(s) of Record
6. Architect(s) of Record
7. Design Manager
8. Construction Manager
9. Quality Program Manager
10. Third Party and Utility Coordination Manager
11. Project Safety Representative

EXHIBIT 21

MAJOR APPROVALS AND MAJOR APPROVAL DEADLINES

MAJOR APPROVAL	MAJOR APPROVAL DEADLINE
DBI Site Permit	The later of (i) 270 calendar days after Financial Close; and (ii) the date for approval of the Major Approval included in the approved Project Schedule.
DBI Demolition Permit	The later of (i) 270 days after the last to occur of (x) Non-Profit Entity has submitted a fully compliant and complete request and application to DBI in accordance with applicable Law and the policies and procedures of DBI; (y) Non-Profit Entity has paid in full all fees and charges required for the review, consultation and issuance of the Major Approval by DBI; and (z) Non-Profit Entity has satisfied all other conditions to the commencement and continuation of review by DBI in accordance with applicable Law and the policies and procedures of DBI, including any requirements of the CEQA MMRP; and (ii) the date for approval of the Major Approval included in the approved Project Schedule.
DBI Shoring Permit	The later of (i) 270 days after the last to occur of (x) Non-Profit Entity has submitted a fully compliant and complete request and application to DBI in accordance with applicable Law and the policies and procedures of DBI; (y) Non-Profit Entity has paid in full all fees and charges required for the review, consultation and issuance of the Major Approval by DBI; and (z) Non-Profit Entity has satisfied all other conditions to the commencement and continuation of review by DBI in accordance with applicable Law and the policies and procedures of DBI, including any requirements of the CEQA MMRP; and (ii) the date for approval of the

	Major Approval included in the approved Project Schedule.
DBI Foundations and Superstructure Permit	The later of (i) 210 days after the last to occur of (x) Non-Profit Entity has submitted a fully compliant and complete request and application to DBI in accordance with applicable Law and the policies and procedures of DBI, including any requirements of the CEQA MMRP; (y) Non-Profit Entity has paid in full all fees and charges required for the review, consultation and issuance of the Major Approval by DBI; and (z) Non-Profit Entity has satisfied all other conditions to the commencement and continuation of review by DBI in accordance with applicable Law and the policies and procedures of DBI; and (ii) the date for approval of the Major Approval included in the approved Project Schedule.