MEMORANDUM OF UNDERSTANDING

(San Francisco Fire Department Training Facility)

This **MEMORANDUM OF UNDERSTANDING** (this "**Agreement**"), dated for reference purposes only as of December 5, 2025, ("**Agreement Date**"), is made by and between the SAN FRANCISCO FIRE DEPARTMENT ("**SFFD**") and the SAN FRANCISCO PUBLIC UTILITIES COMMISSION ("**SFPUC**") (each, a "**Party**" and collectively, the "**Parties**"), both departments of the City and County of San Francisco (**City**.)

RECITALS

A. City owns approximately eight (8) acres of real property under the SFFD's jurisdiction ("**SFFD Property**") located at 1236 Carroll Avenue in San Francisco and generally depicted on the map attached as **Exhibit A**.

B. The San Francisco Department of Public Works ("**Public Works**") acting on the SFFD's behalf, is developing a new fire training facility ("**Division of Training**") which will be constructed on the SFFD Property (the "**Project**"). The Division of Training is generally depicted on the map attached as **Exhibit A.** The Project is funded through an Earthquake Safety and Emergency Response Bond, approved by voters during the March 2020 election. The new Division of Training will improve operational efficiency by consolidating the existing SFFD training facilities in one new location. The purpose of the Division of Training is to provide necessary, upgraded facilities for effective firefighting and lifesaving, including live-fire training, classroom training, equipment training, and emergency medical services training.

C. The Project seeks to grade, pave, and install on the SFFD Property a Fire Training and Administration Building, an Apparatus Building for vehicle and equipment storage, a Maintenance Shop, several controlled live-fire and rescue structures, Urban Search and Rescue Simulations (earthquake-damaged buildings, confined spaces, trenches), and paved roadways with hills to simulate San Francisco topography and street conditions for fire apparatus vehicle maneuvering, fire ladder, and fire hose deployment training.

D. The SFPUC has jurisdiction over and maintains the City's wastewater system, which includes all municipal sewage treatment and disposal and stormwater systems and other related facilities located within the City. Within the SFFD Property, there are currently paper streets in which the SFPUC accesses, owns, and maintains (i) an 18-foot-wide subsurface box culvert ("**Box Sewer**") located within a 35-foot-wide service area in Hawes Street and Bancroft Avenue ("**SFPUC Box Sewer Service Area**"); (ii) a two-foot-six-inch (2'6") by three-foot-nine inch (3'9") subsurface sewer main ("**Sewer Main**") located within a 25-foot-wide service area in and adjacent to Griffith Street ("**SFPUC**

Sewer Main Service Area"); (iii) one (1) communication line in Hawes Street and Bancroft Avenue; and (iv) manholes and catch basins. The Box Sewer, the Sewer Main, communication line, surface manholes, and catch basins are together referred to as the "**SFPUC Facilities**," and the SFPUC Box Sewer Service Area and the SFPUC Sewer Main Service Area are together referred to as the "**Permanent Use Area**". The Permanent Use Area is depicted generally on the drawing attached as **Exhibit B.** The Parties may amend the drawing attached as **Exhibit B** following the completion of the initial construction of the Division of Training and attach the revised drawing as **Exhibit B-1** to this Agreement.

E. The Project design development and construction documents are anticipated to be completed by November 2025.

F. Public Works desires to attach this Agreement to the Request for Proposals to inform and solicit a construction management firm for the Project.

G. City desires to vacate portions of Griffith Street, Bancroft Avenue, and Hawes Street to incorporate the vacated portions of these paper streets into the SFFD Property and facilitate the development of the Division of Training. Public Works started the street vacation process in February of 2024. A condition of the street vacation approval will require the Parties to execute and deliver this Agreement.

H. The Project plans to install a permanent access road and parking lot on the surface of the Permanent Use Area. To that end, the Project contemplates adding protective measures to address the effect of the anticipated loading of heavy vehicles and equipment on the vacated portions of the former public streets, the SFPUC Facilities, and the new access roads on the Permanent Use Area.

I. The construction of the Division of Training is anticipated to begin in 2025, with anticipated completion by 2028.

J. The SFPUC and the SFFD desire to preserve the SFPUC's access to the SFFD Property and access to and use of the Permanent Use Area for the SFPUC Utility Use (as defined in **Section 2**(**f**) of this Agreement on the terms and conditions of this Agreement.

NOW, THEREFORE, IN CONSIDERATION of the foregoing, the Parties hereby agree as follows:

AGREEMENT

1. **Recitals**. The foregoing recitals are true and correct and are incorporated in this Agreement by this reference.

2. **Definitions.**

   (a) "**Base Conditions**" means and refers to: four-inch (4") thick asphalt concrete as specified in Section 208 of the San Francisco Department of Public Works Standard Specifications, over eight-inch (8") thick Portland cement concrete base Class 5.5-3000-1½ as specified in Section 207 of the San Francisco Department of Public Works Standard Specifications, over 12" thick Class II aggregate base as specified in Section 205 of the San Francisco Department of Public Works Standard Specifications for paved areas and native backfill for unpaved areas.

   (b) "**Commencement Date**" means the date on which this Agreement is mutually executed and delivered by the Parties.

   (c) "**SFFD Agents**" means and refers to the SFFD's employees, agents, consultants, contractors, subcontractors, suppliers, licensees, invitees, and guests.

   (d) "**Division of Training**" means and refers individually and collectively to the Division of Training (formerly referred to as the Fire Training Facility) and any new temporary or permanent structure or any permanent addition to a permanent structure.

   (e) "**SFPUC Agents**" means and refers to the SFPUC's employees, agents, consultants, contractors, subcontractors, suppliers, invitees, and guests.

   (f) "**SFPUC Utility Use**" means and refers to the SFPUC's operation, use, inspection, maintenance, repair, renovation, reconstruction, and replacement of the SFPUC Facilities in, under, and on the Permanent Use Area.

3. **Commencement Date**; **Term** The term of this Agreement ("**Term**") shall commence on the Commencement Date and shall continue until the SFPUC removes the SFPUC Facilities from the SFFD Property ("**Expiration Date**").

4. **Grant of Entry; SFPUC Access Rights.** The SFFD hereby grants to the SFPUC and the SFPUC Agents the right to enter the SFFD Property with personnel, passenger and heavy vehicles, materials, and equipment on designated access roads to access, inspect, occupy, and use the Permanent Use Area for the SFPUC Utility Use ("**SFPUC Access Rights**") on the terms and conditions stated in this **Section 4**.

(a) SFPUC Utility Use. The SFFD acknowledges and agrees that the SFPUC generally requires unimpeded access through any locked Division of Training gates to the Permanent Use Area on a 24-hour/seven-day-a-week basis for the SFPUC Utility Use. To that end, the SFPUC will have unimpeded access at all times through any locked gates to the Division of Training by the use of a lock mechanism jointly controlled by the Parties, such as a key card system, or similar system.

(b) SFPUC Utility Emergency. If an emergency requires the maintenance, repair, or construction of the SFPUC Facilities in, on, or about the Permanent Use Area ("**Emergency Work**"), the SFPUC and the SFPUC Agents will have unimpeded access at all times through any locked Division of Training gates to the Permanent Use Area. The SFPUC shall endeavor to provide as much practical notice as possible to the SFFD regarding such Emergency Work under **Section 12(a)**, unless the emergency is of such a nature that no such notice is practicable. The Parties will use prompt, good faith efforts to remove any SFFD installation, property, vehicles, and equipment from the Permanent Use Area to facilitate the Emergency Work. The SFPUC shall diligently pursue the Emergency Work to completion at its sole cost. At its reasonable discretion, the SFPUC may temporarily fence the portion of the Permanent Use Area required for the Emergency Work. The Emergency Work may impact the SFFD's ability to enter and use the Permanent Use Area.

(c) SFPUC Utility Upgrades, **Improvements**, **or Capital Projects**. If at the SFPUC's sole discretion, the SFPUC undertakes a non-emergency utility improvement, upgrade, replacement, repair project, or capital project ("**SFPUC Project**") in, on, or under the Permanent Use Area, the SFPUC will provide as much notice as possible but no less than forty-five (45) days prior written notice to the SFFD under **Section 12(d)**. Before the SFPUC begins preparing a schedule for the SFPUC Project on the Permanent Use Area and sends a notice regarding the SFPUC Project to the SFFD, the Parties will promptly meet and coordinate in good faith the SFPUC Project activities with the SFFD activities through the monthly SFFD-SFPUC Coordination Meeting process, as scheduled with the SFPUC's San Francisco Water Division. Before the SFPUC commences a SFPUC Project, the SFFD will use prompt, good-faith efforts to remove any SFFD installation, property, vehicles, and equipment from the Permanent Use Area. The SFPUC and the SFPUC Agents will diligently pursue the SFPUC Project work to completion at the SFPUC's cost. At its reasonable discretion, the SFPUC may temporarily fence the portion of the Permanent Use Area required for the SFPUC Project. The SFPUC Project may temporarily impact the SFFD's ability to enter and use the Permanent Use Area.

(d) SFPUC Cleaning and Inspections. If at the SFPUC's sole discretion, the SFPUC undertakes a non-emergency cleaning and/or inspection in, on, or under the Permanent Use Area, the SFPUC will provide as much notice as possible but no less than fifteen (15) days prior written notice to the SFFD pursuant to **Section 12(b)**. Before the SFPUC begins preparing a schedule for the non-emergency cleaning and/or inspection of the Permanent Use Area and sends a notice regarding the same to the SFFD, the Parties will promptly meet and coordinate in good

faith the SFPUC non-emergency cleaning and/or inspection with the SFFD activities through the monthly SFFD-SFPUC Coordination Meeting process. Before the commencement of the cleaning and/or inspection, the SFFD will use prompt, good-faith efforts to remove any SFFD installation, property, vehicles, and equipment from the Permanent Use Area. The SFPUC and the SFPUC Agents will diligently pursue the SFPUC cleaning and/or inspection to completion at the SFPUC's cost. The SFPUC's cleaning and/or inspection may temporarily impact the SFFD's ability to enter and use the Permanent Use Area.

5. **SFFD's Rights and Obligations regarding the Permanent Use Area**. Subject to the terms and conditions of **Section 4** (Grant of Entry; SFPUC Access Rights) and **Section 7** (SFPUC Facilities Protection Measures), the SFFD has the right to operate and maintain the Division of Training for the SFFD's use and may maintain paved areas over, across, and along the Permanent Use Area that do not impede the SFPUC Access Rights or the SFPUC Utility Use.

6. **Project Obligations regarding the Permanent Use Area.** The Parties agree to comply with the Project obligations stated in the attached **Exhibit C**.

7. **SFPUC Facilities Protection Measures**. At all times, the SFFD will use good faith, and diligent efforts to satisfy and cause the SFFD Agents to satisfy the obligations of this **Section 7**. The SFFD and the SFFD Agents acknowledge and agree that the surface and subsurface SFPUC Facilities provide an essential utility service to the City and are subject to damage by heavy loads of equipment, vehicles and structures, tree roots, flooding, and other perils, and the SFFD further agrees that the SFFD and the SFFD Agents will not use the Permanent Use Area or permit the same to be used for any purpose or in any manner or take any action in, on, under, or about the Permanent Use Area that may interfere with the SFPUC Access Rights or the SFPUC Utility Use or damage or endanger the Permanent Use Area or the SFPUC Facilities or related facilities. Without limiting the foregoing, the SFFD agrees as follows:

   (a) Third-Party Use. The SFFD will not use, or authorize any third-party use in, on, or over the Permanent Use Area that would violate the terms of this Agreement or threaten, damage, harm, or otherwise interfere with the SFPUC Access Rights and the SFPUC Utility Use of the Permanent Use Area.

   (b) Exercise of Due Care. The SFFD will use and will cause the SFFD Agents to use, due care at all times to avoid any damage or harm to SFPUC Access Rights and the SFPUC's use of the Permanent Use Area and/or the SFPUC Facilities.

   (c) Cooperation. The SFFD and the SFFD Agents will work closely with the SFPUC and the SFPUC Agents (i) to minimize any potential or actual disturbance (even if temporary) of the SFPUC Access Rights and (ii) to avoid any potential or actual disruption (even if temporary) of the SFPUC use of the SFPUC Facilities, in, under, on, or about the Permanent Use Area. In the event of an emergency or a SFPUC Project, the SFFD will use prompt, diligent good

faith efforts to remove any SFFD installation, property, vehicles, and equipment from the Permanent Use Area. To that end, the SFFD agrees to meet annually no later than March 1st of each year, promptly upon the SFPUC's request, to inspect the Permanent Use Area together, to coordinate their respective activity schedules through the monthly SFFD-SFPUC Coordination Meeting process, as scheduled with the SFPUC's San Francisco Water Division, regarding activities on the Permanent Use Area, and to resolve any issues, including unauthorized encroachments in, on and under the Permanent Use Area.

(d) Boundary Marking. The SFFD intends to use a portion of the Permanent Use Area as a roadway and a portion as a parking lot. The SFFD will install and maintain in good condition and repair at all times no less than eight (8) permanent signs prominently located within or near the perimeter boundary of the Permanent Use Area so that all users of the Division of Training can (i) avoid any undue interference with the SFPUC Access Rights and the SFPUC Utility Use, (ii) avoid any parking of vehicles that violate the loading restrictions of **Section 7(j)(ii)**; (iii) avoid any excessive loading or storage of vehicles, materials, and equipment on the Permanent Use Area and the SFPUC Facilities, and (iv) avoid the unauthorized installation of any improvement or any tree on the Permanent Use Area. The signs will have the same location placement, content, and specifications as shown in **Exhibit F**. The SFPUC must reasonably approve any changes to the content and location of new signs before their installation.

(e) Fire Suppressant Foam and Salt Water. The SFFD and the SFFD Agents will not use any fire suppressant foam and/or salt water at the Division of Training to avoid the harmful impact of such substances on the SFPUC Facilities.

(f) Connection to the SFPUC Facilities. The SFFD and the SFFD Agents will not install any direct connection to the Box Sewer or the Sewer Main without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c).**

(g) Paving. Any paving above the SFPUC Facilities will be installed according to Standard 1 of the SFPUC Asset Protection Standards attached as **Exhibit D** to this Agreement, or according to a higher standard. The SFFD and the SFFD Agents will not install any paving above the SFPUC Facilities without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c).** As conditions of such consent, the SFPUC may require that a final paving design vary by location for the protection of the SFPUC Facilities and may also require that a structural engineer evaluate the potential impact of the proposed paving on the SFPUC Facilities installed beneath the proposed paving, at the SFFD's sole cost and expense.

(h) Grade Change. Neither the SFFD nor the SFFD Agents nor any other third party shall make any grade change that will affect the SFPUC Facilities without providing notice to and

obtaining the SFPUC's prior written consent as required by **Section 12(c)**. The SFPUC may require as a condition of its consent that any manhole and catch basin affected by a grade change be adjusted to grade at the SFFD's sole cost and expense.

(i) Structures, Alterations, Additions, or Improvements. Neither the SFFD nor the SFFD Agents nor any other third party shall construct or install any new temporary or permanent structure, alteration, addition, or improvement, including fencing, in, on, under, or about the Permanent Use Area or affecting the SFPUC Access Rights beyond the SFPUC-approved Project without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c)**. As a condition of such consent, the SFPUC may request that the SFFD retain a structural engineer to evaluate the potential impact on the SFPUC Facilities beneath the proposed structure or improvement, at the SFFD's sole cost and expense. The structural engineer must submit qualifications and a scope of work for the SFPUC's pre-approval and must provide final stamped technical memos by a licensed structural engineer evaluating (i) any construction impacts and (ii) any potential impacts of SFFD's ongoing activities associated with the improvements on the SFPUC Facilities.

(j) Heavy Equipment and Vehicles. To prevent damage to the SFPUC Facilities, the SFFD's (including the SFFD Agents) use of vehicles and equipment within the Permitted Use Area will be subject to the following restrictions:

i. The depth of soil or paving cover over the top of the Permanent Use Area must be at least four feet (4') deep to accommodate the loading as defined below in **subsection (ii)**. If any equipment with axle loading exceeds the loads stated in **subsection (ii)** below or if the depth of soil or paving cover is less than four feet (4') deep, the SFFD will submit to the SFPUC for review and consent, at the SFPUC's sole discretion, engineering calculations prepared by a licensed Professional Engineer licensed in California showing that the Permanent Use Area will not be adversely affected by the SFFD's proposed activities. If the Permanent Use Area may be adversely affected, the SFFD will submit remedial measures for the SFPUC's consent to ensure that no adverse effect will occur.

ii. The effects of vehicle and equipment loads on the SFPUC Facilities must not exceed the effects of the "AASHTO Standard H-20 Loading."

(k) Construction Vibration. Except for any construction or earthwork activity using hand-held equipment, the SFFD and SFFD Agents will not perform any construction or earthwork activity or use any vibrating compaction equipment within twenty (20') feet of the SFPUC Facilities without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c).** As a condition of such consent, the SFPUC may require the SFFD to submit to the SFPUC for review (i) a vibrating and settlement monitoring plan date-

stamped and signed by the Project Engineer of Record, (ii) a description of the type of equipment that will be used, and (iii) proposed protection standards for the SFPUC Facilities before the SFPUC will issue its consent. The SFPUC may withhold its consent at its sole discretion. The SFPUC will require the SFFD to monitor any such construction activity for the potential vibration and settlement of the SFPUC Facilities.

(l) Excavation Work. The SFFD and SFFD Agents will not perform any excavation work to a depth of five feet (5') or greater and within twenty feet (20') of the SFPUC Facilities without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c)** for each proposal, which the SFPUC may withhold at its sole discretion**.** The SFPUC may condition and/or oversee any permitted excavation work. Additionally, before the commencement of and after the completion of any excavation or shoring work, the SFFD will perform video inspections of the SFPUC Facilities using the same requirements outlined in **Exhibit C Section A. 2. (b) – (i) and 3. (a) – (f)** except that for any excavation or shoring work occurring after the completion of the construction of the Project, the SFFD will also be responsible, at its sole cost, for the cleaning of the Box Sewer and Sewer Main prior to pre-construction and post-construction inspections. The SFFD will remedy any damage to the SFPUC Facilities caused by SFFD or any SFFD Agent due to such work. The SFFD must also notify the Underground Service Alert at least two (2) days before the start of such work.

(m) Trees and Shrub Restriction. Neither the SFFD, the SFFD Agents, any other City department nor any other third party will install any trees or shrubs in, on, or within ten feet (10') of the Permanent Use Area without providing notice to and obtaining the SFPUC's prior written consent as required by **Section 12(c)**. The applicant must provide with its request for approval, at its sole cost, a planting plan and the written opinion of a licensed third-party arborist analyzing the potential harm, if any, of the installation of such vegetation to the SFPUC Facilities. The planting plan will conform to the **SFPUC Asset Protection Standards** attached as **Exhibit D**. Any tree or shrub installed within the Permanent Use Area must be installed in a planter of sufficient size to contain all tree roots, as determined by the SFPUC in its sole discretion. The SFPUC may remove any unauthorized tree or shrub from the Permanent Use Area.

(n) Restoration of the Permanent Use Area. Immediately following completion of any work on the Permanent Use Area, the SFFD will remove all debris and any excess dirt and will restore the Permanent Use Area to its condition immediately before such work, to the SFPUC's satisfaction.

(o) Acceptance of Work. The SFFD will not accept work or release its contractors, consultants, and suppliers for work in, on, and under the Permanent Use Area before allowing the SFPUC an opportunity to inspect the work and securing the SFPUC's written consent.

8. **SFPUC Obligations.**

   (a) Exercise of Due Care. The SFPUC will use and will cause the SFPUC Agents to use, due care at all times to conduct the SFPUC Utility Use in, under, and on the Permanent Use Area in a manner that minimizes interference with the SFFD use, improvements, property, equipment, and vehicles, taking into account the scope of work to be performed.

   (b) Restoration. The Parties acknowledge the restrictions on improvements in the Permanent Use Area set forth in **Section 7(i)**. The SFFD acknowledges that the SFPUC Utility Use may result in damage to SFFD improvements in and on the Permanent Use Area, and that the SFPUC will not be required to maintain, repair, or replace any SFFD improvement over, across, under, within, or along the Permanent Use Area except as provided in this **Section 8(b)**. Upon the completion of any SFPUC Project or Emergency Work and at its sole cost, the SFPUC will (i) remove any temporary fencing; (ii) remove all debris and excess dirt; (iii) restore the Permanent Use Area to the Base Conditions, including any areas disrupted by SFPUC Project vehicles, and (iv) promptly deliver a notice of completion to the SFFD. The SFPUC will have no other restoration obligations.

9. **SFFD Maintenance and Repair Obligations**. The SFFD agrees (i) to maintain the roadways on the SFFD Property and the Permanent Use Area in good, clean and safe condition, free of refuse, (ii) to repair and restore any damage to the roadways, the Permanent Use Area and the SFPUC Facilities caused by any activity of the SFFD or SFFD Agents at the SFFD's sole cost; and (iii) to keep the manholes on the Permanent Use Area clear of any debris or improvement at all times. The SFPUC may elect to perform any such maintenance, repair, or restoration work to the SFPUC Facilities or the Permanent Use Area, in which event the SFFD will pay the cost to the SFPUC within thirty (30) days after receipt of the SFPUC's invoice.

10. **Insurance**. Each Party will require any third party it hires in connection with third-party use of the Permanent Use Area to secure such insurance as is recommended by the City Risk Manager. The City and its officers, agents, and employees will be included as additional insureds for any such insurance.

11. **Compliance with Law**. As used in this Agreement, Hazardous Materials will mean any substance, water, or material that has been determined by any state, federal, or local government authority to be capable of posing a risk of injury to health, safety, or property. If a Party's activities disturb any pre-existing Hazardous Material conditions and such conditions are not caused by that Party or its Agents, that Party will be responsible under this Agreement for the cost of compliance with laws respecting such Hazardous Material condition only to the extent that such Party's handling, excavation, relocation, investigation, disposal or other exercise of control over the Permanent Use Area exacerbated such pre-existing Hazardous Material, which results in City incurring new or additional costs or liability. The remaining costs of compliance associated with such release or threatened release will be borne and allocated within the City as it would be in the

absence of this Agreement. Each Party will immediately notify the other Parties in writing of any release or threatened release of any Hazardous Materials, whether or not the release is in quantities that would require reporting to a governmental or regulatory agency under the law. The term "release" or "threatened release" when used with respect to Hazardous Material will include any actual or imminent spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing in, on, under or about the Permanent Use Area.

12. Notices and Procedure for Obtaining SFPUC Consent.

(a) Emergency Notices. The Parties will provide immediate telephonic and email notice of any emergency affecting the Permanent Use Area and the SFPUC Facilities as follows:

if to the SFFD:

SFFD Dispatch (24-hour resource)
(415) 558-3268
and
Division 3 (Assistant Chief, 24-hour role)
Station: (415) 558-3207
Mobile: (415) 699-7613

if to the SFPUC:

SFPUC Wastewater Enterprise
Southeast Treatment Plant Operations Chief's Office
(415) 920-4700

(b) Routine or Day-to-Day Communication Notices. Day-to-day notices do not include notices of any planned SFFD Activity Notice. Day-to-day notices may be communicated by email as follows:

if to the SFFD: firesupportservices@sfgov.org

if to the SFPUC: sewerinspections@sfwater.org

(c) Planned SFFD Activity Notices and Procedure for obtaining SFPUC Consent. For any planned construction, installation, excavation, or repair work in, on, under or affecting the Permanent Use Area, the SFFD, the SFFD Agents and any other third party will (a) obtain the SFPUC In-City Project Review Application by emailing **SFProjectReview@sfwater.org**; (b) complete and submit to the SFPUC an In-City Project Review Application with related attachments and participate in the SFPUC In-City Project

Review as early as is practicable and no less than forty-five (45) days before the planned work or installation; (c) obtain the SFPUC's prior written consent of the plans and specifications; (d) promptly provide the SFPUC with a copy of the as-built drawings for such installation. The plans or drawings submitted before and after any installation will include sufficient detail to allow the SFPUC to precisely locate the SFFD Facilities.

The SFPUC will make a good faith effort to respond within thirty (30) days of receipt of a request for SFPUC's prior written consent and receipt of a complete In-City Project Review Application. Any activity by the SFFD or the SFFD Agents will comply with **Section 7** (SFPUC Facilities Protection Measures).

(d) Other Notices. Except as otherwise provided above in this Section, all notices, demands, consents, or consents which are or may be required to be given by any Party to the others under this Agreement will be in writing and will be given to such representatives of the SFFD and the SFPUC as will from time to time be designated by the Parties for receipt of notices, or by reputable commercial courier confirming delivery, or via the United States Mail, postage prepaid, and addressed as follows:

if to SFFD to:

Chief of Department
San Francisco Fire Department
698 2nd Street
San Francisco, CA 94107

with a copy to:

City and County of San Francisco
Real Estate Division
25 Van Ness Avenue, Suite 400
San Francisco, California 94102
Attention: Director of Property

and if to the SFPUC to:

General Manager
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, California 94102

with a copy to:

Assistant General Manager, Wastewater Enterprise
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, California 94102

with a copy to:

Linda Candelaria, Division Manager
SFPUC Collections System Division
lcandelaria@sfwater.org
415-695-7358

or to such other address concerning any Party as that Party may from time to time designate by notice to the others given under the provisions of this Section. ***Sending a notice via interdepartmental mail does not constitute sufficient notice.***

13. Obligations Run With the Land: Future Access.

(a) If City transfers any portion of the Permanent Use Area to a non-City entity, the SFFD will provide notice to the SFPUC pursuant to the notice and consent procedure of **Section 12(d).** City will reserve an easement for the City for the SFPUC Access Rights and the SFPUC Utility Use and to perform such other actions as are necessary for the SFPUC, in its sole discretion, to support the SFPUC Utility Use (**Reserved Easement**). The Reserved Easement will incorporate the Parties' respective rights and obligations stated in this Agreement as to such portion of the transferred Permanent Use Area and will be in a form and substance acceptable to the SFPUC. The Reserved Easement will be recorded in the City's Official Records, provided that the Reserved Easement will be subject to any necessary consent of the San Francisco Fire Commission or the San Francisco Public Utilities Commission, as applicable, and, to the extent required, the City's Board of Supervisors and Mayor. The Reserved Easement will run with the land and be binding on the future owners of the SFFD Property.

(b) If the SFFD transfers or permits the use of all or any portion of the SFFD Property to another City entity or leases, licenses, or otherwise permits a third party to use all or any portion of the SFFD Property for more than thirty (30) days, the SFFD will provide notice to the SFPUC pursuant to the notice and consent procedure of **Section 12(d).** The SFFD will provide the City entity or third party with a copy of this Agreement and require the City entity or third party in writing to acknowledge and accept the SFPUC's prior, existing, and superior SFPUC Access Rights and SFPUC Utility Use rights regarding the SFFD Property and agree to comply with this Agreement. The SFFD will provide the SFPUC with copies of any such SFFD agreement with a City entity or third party and acknowledgment and acceptance.

14. **Miscellaneous Provisions**. (**a**) In any instance under this Agreement where the SFFD's or the SFPUC's consent is required, such consent will be at the SFFD's or the SFPUC's sole discretion. (**b**) The Parties agree to execute and acknowledge such other and further documents as may be necessary or reasonably required to carry out the mutual intent of the Parties as expressed in this Agreement. (**c**) All exhibits referenced in and attached to this Agreement are incorporated in this Agreement by this reference and made a part of this Agreement. (**d**) Neither this Agreement nor any of its terms may be amended or modified except by a written instrument executed by the Parties. (**e**) If because of inadvertence, and contrary to the intention of the Parties, errors are made in this Agreement, then the Parties by mutual agreement may correct such error by written memorandum executed by them without the necessity of a formal amendment of this Agreement. The department directors, in consultation with the City Attorney, may execute such written memorandum on behalf of their respective departments. (**f**) This Agreement may be signed in counterparts, each of which will be an original and all of which together will constitute the same instrument.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the date first written above.

AGREED TO AS WRITTEN ABOVE:

SAN FRANCISCO FIRE DEPARTMENT

By: Signed by: Dean Crispen FF9EB9C68069403...
DEAN CRISPEN
Chief of Department

Date: 12/05/2025 | 1:39:57 PM PST

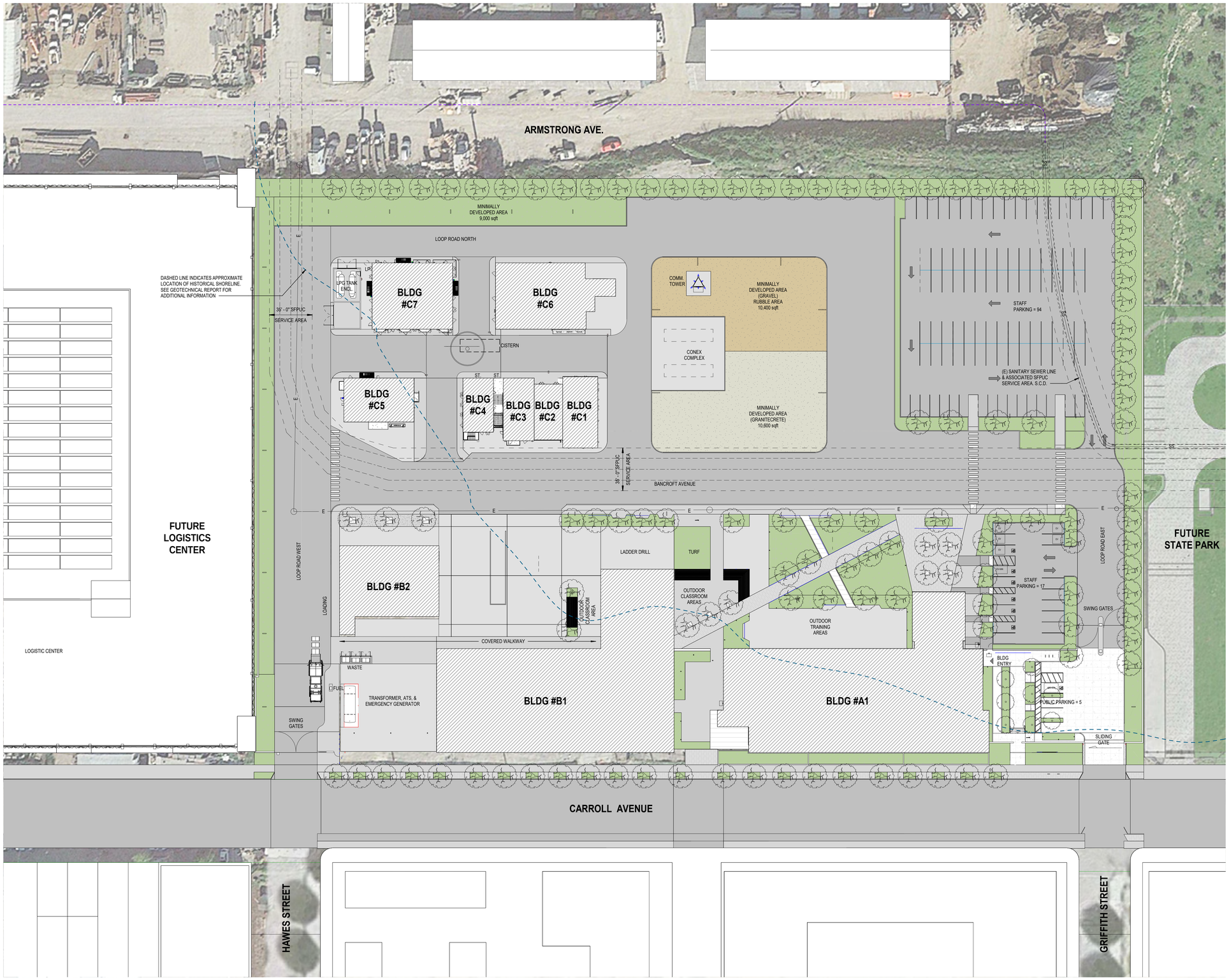
SAN FRANCISCO PUBLIC UTILITIES COMMISSION

By: DocuSigned by: Dennis Herrera 6619F304C40A4DA...
DENNIS J. HERRERA
General Manager

Date: 12/05/2025 | 4:10:49 PM PST

Exhibit A

Depiction of SFFD Property and Division of Training
[attached]



1 ARCHITECTURAL SITE KEY PLAN
1/32" = 1'-0"

0 10' 30' 50' 100'

BUILDING DESIGNATION

#BLDG A1 : ADMINISTRATION & CLASSROOM BUILDING

ZONE B STRUCTURES:
#BLDG B1 : ACADEMY BUILDING
#BLDG B2 : MAINTENANCE SHOPS BUILDING

ZONE C STRUCTURES:
#BLDG C1 : PATIO RESIDENTIAL BUILDING
#BLDG C2 : JUNIOR 5 RESIDENTIAL BUILDING
#BLDG C3 : HILLSIDE RESIDENTIAL BUILDING
#BLDG C4 : 4-STORY RESIDENTIAL BUILDING
#BLDG C5 : TOWER BUILDING
#BLDG C6 : USAR BUILDING
#BLDG C7 : COMMERCIAL/ RESIDENTIAL BUILDING

NOTE: "COORDINATION OF THE STRUCTURAL AND MECHANICAL SYSTEMS FOR THIS BUILDING ARE NOT FULLY COORDINATED IN THE 50% CONSTRUCTION DOCUMENT. COORDINATION WILL CONTINUE DURING THE CONSTRUCTION DOCUMENT PHASE."

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SAN FRANCISCO PUBLIC WORKS

SAN FRANCISCO FIRE DEPARTMENT
DIVISION OF TRAINING

1200 CARROLL AVENUE, SAN FRANCISCO, CALIFORNIA

50% CONSTRUCTION DOCUMENTS
ACCESSIBILITY REVIEW

08/15/2025
REVISIONS

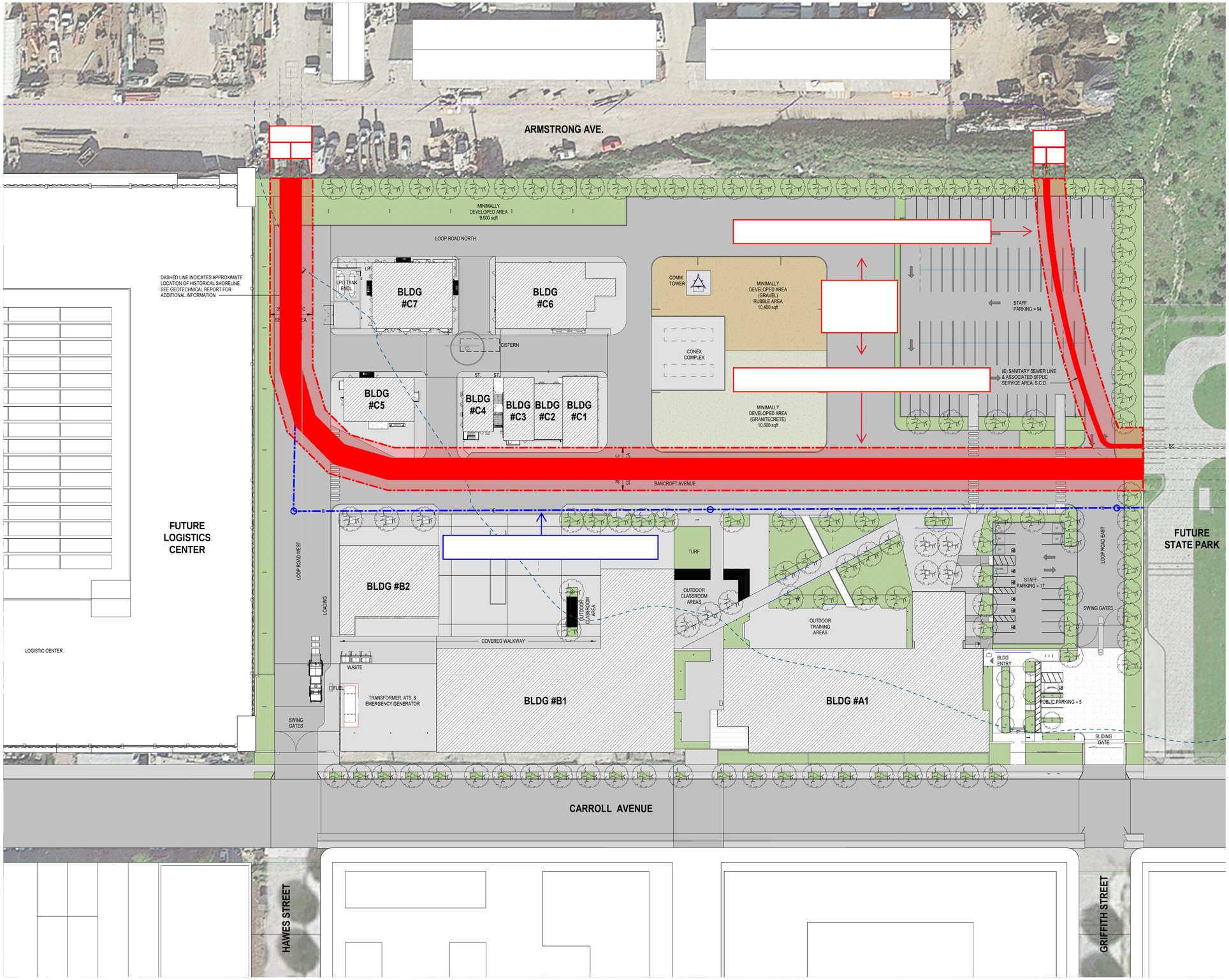
75-24169-00

ARCHITECTURAL SITE KEY PLAN

0-A1.00

Exhibit B

Depiction of Permanent Use Area
[attached]



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T.N. P.N.

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SF PUBLIC WORKS

SAN FRANCISCO FIRE DEPARTMENT
DIVISION OF TRAINING
1200 CARROLL AVENUE, SAN FRANCISCO, CALIFORNIA

50% CONSTRUCTION DOCUMENTS
ACCESSIBILITY REVIEW

08/15/2025
REVISIONS

75-24169-00

ARCHITECTURAL SITE KEY PLAN

0-A1.00

Exhibit C

Project Obligations

A. SFFD Project Obligations.

1. **Ongoing Project Obligations.** Before the commencement of and at all times during the Project, the SFFD will perform the following actions at its sole cost:

   (a) allow access to the SFPUC and the SFPUC Agents to the SFFD Property to observe any work related to the Project;

   (b) provide the SFPUC with funding through a City work order and a SFFD chart of accounts for SFPUC staff to facilitate the entry by the SFFD and the SFFD Agents to the SFPUC Facilities;

   (c) protect the SFPUC Access Rights and protect the SFPUC Facilities from interference or damage during construction as required by the SFPUC in its sole discretion;

   (d) require any SFFD Agent performing work to the SFPUC Facilities or in the Permanent Use Area to maintain a performance bond in an amount determined by the City Risk Manager; and

   (e) bear all costs or expenses of any kind or nature in connection with the Project, except for the SFPUC's obligations as expressly provided in **Section B** of this **Exhibit C**.

2. **Pre-Construction Obligations.** Before the commencement of the Project, the SFFD will perform the following actions at its sole cost:

   (a) to the extent the SFFD has not already done so, the SFFD will incorporate the August 22, 2023 SFPUC Project Review Committee comments into the Project drawings and specifications. A copy of the SFPUC comments is attached to this **Exhibit C** as **Schedule 1.**

   (b) provide construction drawings to detail staging and construction activities to the SFPUC. The plans must also illustrate the Permanent Use Area as a restricted area for staging, construction equipment, or heavy-duty construction vehicles.

(c) engage and pay for a Public Works structural engineer to inspect the Box Sewer for functional hydraulic performance and structural adequacy and to perform a complete video inspection of the Box Sewer. The SFFD or the SFFD Agents will submit (i) a work plan for SFPUC written approval in advance of the inspection, (ii) the video inspections, and (iii) any questions to sewerinspections@sfwater.org;

(d) engage and pay for a qualified Public Works or a third-party consultant to perform a video inspection of the Sewer Main that complies with National Association of Sewer Service Companies Pipeline Assessment Certification Program standards and the SFPUC CCTV Specifications and Submittal Guidelines attached as **Exhibit F**. The SFFD or the SFFD Agents will submit (i) a work plan for SFPUC written approval in advance of the inspection, (ii) the video inspections, and (iii) any questions to sewerinspections@sfwater.org;

(e) pay for a structural engineer or civil engineer from Public Works to review the pre-condition assessment inspections to identify any preexisting damage to or deficiencies in the Permanent Use Area and the SFPUC Facilities;

(f) review the inspection reports with the SFPUC and agree in good faith as to the existing condition of the SFPUC Facilities;

(g) negotiate in good faith with the SFPUC as to any corrective measures that must be performed to the Permanent Use Area and the SFPUC Facilities by the SFFD and the SFFD Agents before the commencement of construction; and

(h) negotiate in good faith with the SFPUC as to the Parties' respective obligations to pay for any required corrective measures to the Permanent Use Area and the SFPUC Facilities.

(i) provide no less than thirty (30) days' prior notice and obtain the SFPUC's prior written consent before constructing or installing any new temporary or permanent structure, alteration, addition, or improvement, including fencing, in, on, under, or about the Permanent Use Area or affecting the SFPUC Access Rights. As a condition of such consent, the SFPUC may request that the structural engineer retained in connection with the Project evaluate the potential impacts on the SFPUC Facilities beneath the proposed structure or improvement, at the SFFD's sole cost and expense. The Project's structural engineer must submit qualifications and a scope of work for the SFPUC's pre-approval and must provide final stamped

technical memos by a licensed structural engineer evaluating (i) construction impacts and (ii) potential impacts of SFFD's ongoing activities associated with the improvements on the SFPUC Facilities.

3. **Post-Construction Obligations.** After the completion of construction of the Project but before the Project closeout, the SFFD will perform the following tasks at its sole cost:

(a) engage and pay for a Public Works structural engineer to inspect the Box Sewer for functional hydraulic performance and structural adequacy and to perform a complete video inspection of the Box Sewer. The SFFD or the SFFD Agents will submit (i) a work plan for SFPUC written approval in advance of the inspection, (ii) the video inspections, and (iii) any questions regarding the inspections to sewerinspections@sfwater.org;

(b) engage and pay for a qualified Public Works or a third-party consultant to perform a video inspection of the Sewer Main that complies with National Association of Sewer Service Companies Pipeline Assessment Certification Program (NASSCO PACP) standards and the SFPUC CCTV Specifications and Submittal Guidelines attached to this Agreement as **Exhibit C**. The SFFD or the SFFD Agents will submit (i) a work plan for SFPUC written approval in advance of the inspection, (ii) the video inspections, and (iii) any questions to sewerinspections@sfwater.org;

(c) pay for a Public Works structural or civil engineer to review the post-condition assessment inspections to identify any post-construction damage to or deficiencies in the Permanent Use Area and the SFPUC Facilities;

(d) review the inspection reports with the SFPUC and agree in good faith as to the post-construction condition of the SFPUC Facilities;

(e) negotiate in good faith with the SFPUC as to any corrective measures that must be performed to the SFPUC Facilities by the SFFD and the SFFD Agents; and

(f) immediately following completion of the work, remove all debris and any excess dirt such that the condition of the Permanent Use Area is consistent with the Project as previously approved by the SFPUC, to the SFPUC's satisfaction.

B. SFPUC Project Obligations.

1. **Ongoing Project Obligations.** Before the commencement of and at all times during the Project, the SFPUC will promptly, following notice, facilitate the entry by the SFFD and the SFFD Agents to the SFPUC Facilities.

2. **Pre-Construction Obligations.** Before the commencement of the Project, the SFPUC will perform the following actions:

   (a) engage and pay for a third-party contractor to clean the Box Sewer and Sewer Main, if the SFPUC determines, in its sole discretion, if such cleaning is necessary before the pre-construction condition assessment inspections;

   (b) review the work plans for the Box Sewer and Sewer Main pre-construction inspection before the inspection;

   (c) review the inspection reports with the SFFD and the SFFD Agents and agree in good faith as to the existing condition of the SFPUC Facilities;

   (d) negotiate in good faith with the SFFD as to any corrective measures that must be performed to the SFPUC Facilities by the SFFD and the SFFD Agents before the commencement of construction; and

   (e) negotiate in good faith with the SFFD as to the Parties' respective obligations for paying for any required corrective measures to the SFPUC Facilities.

3. **Post-Construction Obligations.** After the completion of construction of the Project but before the Project closeout, the SFPUC will perform the following actions:

   (a) engage and pay for a third-party contractor to clean the Box Sewer and Sewer Main, if the SFPUC determines in its sole discretion, that such cleaning is necessary, before the post-construction condition assessment inspections;

   (b) review the work plans for the Box Sewer and Sewer Main post-construction inspection before the inspection;

   (c) review the inspection reports with the SFFD and agree in good faith as to the post-construction condition of the SFPUC Facilities and the Permanent Use Area; and

(d) negotiate in good faith with the SFPUC as to any corrective measures that must be performed to the SFPUC Facilities and the Permanent Use Area by the SFFD and the SFFD Agents.

Schedule 1 to Exhibit C

August 22, 2023 SFPUC Comment Letter regarding the SFFD Fire Training Facility

[attached]

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Real Estate Services Division
525 Golden Gate Avenue, 10th Floor
San Francisco, CA 94102
T 415.487.5210

TO: Scott Moran, Department of Public Works

FROM: San Francisco Public Utilities Commission In-City Project Review Committee

DATE: August 22, 2023

SUBJECT: SFPUC Comments regarding the SFFD Fire Training Facility

Thank you for the opportunity to review and comment on the proposed SFFD Fire Training Facility. The San Francisco Public Utilities Commission (SFPUC) offers the following comments:

SFPUC Water Enterprise Comments

While there are no water reuse or efficiency requirements specific to the proposed SFFD Fire Training Facility, the SFPUC would like to remind the project team that the facility must still comply with efficient plumbing fixture standards and San Francisco's municipal green building requirements. In addition, water use during the facility's operations shall adhere to best management practices and SFPUC's permanent water waste restrictions, regardless of drought conditions. Water waste restrictions can be found at https://sfpuc.org/learning/how-you-can-help/faq-about-wasteful-water-use

Landscape Irrigation

If the project will install or modify 500 square feet or more of landscape area, then the project is required to comply with San Francisco's Water Efficient Irrigation Ordinance, adopted as Chapter 63 of the San Francisco Administrative Code and the SFPUC Rules & Regulations Regarding Water Service to Customers. The project's landscape and irrigation plans shall be reviewed and approved by the SFPUC prior to installation.

Non-potable Water Use for Soil Compaction and Dust Control

San Francisco Public Works Code Article 21 and Section E, Rule 12.1(g) of the San Francisco Public Utilities Commission Rules and Regulations Governing Water Service to Customers restrict the use of potable water for soil compaction and dust control activities if recycled water, well water, or groundwater are available. If a project wants to use potable water, the project must request permission from SFPUC Water Resources Recycled Water Program Administrator, Annahita Fallah (recycledwater@sfwater.org), and

provide any information requested regarding the unavailability of recycled water, well water, or groundwater within 10 miles of the project site.

Water Distribution – City Distribution Division (CDD)

1. After reviewing the provided document(s), CDD takes no exceptions to the proposed plans. Please see Attachment A and submit any questions regarding this attachment to cddengineering@sfwater.org.

SFPUC Wastewater Enterprise Comments

1. Please provide the intended water use with regards to flow rates, the inclusion of fire suppressant foam, and saltwater from the bay. The SFPUC reserves the right to add additional requirements upon further review to limit impacts from the SFFD Fire Training Facility.

2. Provide both existing and proposed utility drawings. Show all lateral connections on drawings. Each building shall have its own sewer/storm lateral constructed per City Std plan 87,196. Sewer vents shall be located two feet (2') behind the proposed face of the curb.

3. The project applicant shall provide the final proposed building sanitary and storm flows in GPM at each point of connection. For storm flow calculations, see the 2015 San Francisco Subdivision Regulations.

4. Existing laterals shall be replaced according to SFPUC standards. Proposed lower laterals shall have a minimum six-inch (6") diameter for single-family residential occupancy and a minimum eight-inch (8") diameter for multi-family residential or commercial occupancies. Lower laterals shall be at a minimum 2% slope.

5. Reuse of existing laterals shall not be allowed. All lateral connections shall be new and replaced to current SFPUC standards, regardless of as-found condition.

6. Any modifications that affect the street flow, including but not limited to sidewalk bulb-outs, altered/moved catch basins, sidewalk widening, etc. will require cross-sectional analyses of each street affected by proposed changes. The project applicant shall determine the existing flow line and compare the pre-existing flow line to the proposed flow line at the affected streets, demonstrating that the existing street overland capacity is not impacted by the proposed development. Upstream conveyance flows are not necessary. If the existing cross-sectional area of flow cannot be contained within the new proposed ROW, the project will need to propose a solution. The analysis shall be stamped and signed by the project applicant's Engineer of Record and submitted to the SFPUC Wastewater Enterprise for review and approval.

7. In addition, the project applicant shall replace any existing sewer laterals within the sidewalk widening limits to comply with the clean-out vent location, which shall be within two feet (2') behind the proposed face of the curb (refer to Comment 1.)

8. Any proposed sidewalk changes within SFPUC Wastewater Enterprise assets are not approved by SFPUC Division unless any existing manhole(s) within sidewalk extension or bulb-out is relocated. Refer to SFPUC Asset Protection Standards S2.a "Sidewalk extensions, bulb-outs, curbs, and gutters shall not be built in the same location as existing manholes." The face of any new curb shall be horizontally offset from the outside edge of any manhole frame by a minimum of eighteen inches (18").

9. Sewer laterals require five feet (5') of clearance from outside of the sewer lateral to the centerline of the tree basin.

10. The project applicant is responsible for designing and building at the correct elevation to avoid flooding from overland flow.

11. All materials shall comply with the latest available City standards or better, subject to approval by the SFPUC.

12. All proposed force mains (if any) are considered private. The SFPUC Wastewater Enterprise's responsibility starts at the connection point to SFPUC Wastewater Enterprise assets.

13. Any increase in wastewater demand shall be submitted to the SFPUC for review and approval including but not limited to the expansion of the property, change in usage, addition of units, etc. The capacity of the sewer system will need to be analyzed to ensure that it can accommodate the flows. The project applicant has the option of providing the analysis, or SFPUC can provide the analysis. If the project applicant does the analysis, the SFPUC Wastewater Enterprise shall review and approve. If the SFPUC does the analysis, the project applicant shall reimburse the SFPUC for personnel time. Note if capacity is limited, additional mitigation will be required from the project.

14. Construction activities such as pile driving, compaction, pipe jacking, and large excavations can damage SFPUC Wastewater Enterprise assets. If these activities take place, monitoring for vibration and settlement of SFPUC Wastewater Enterprise assets will be required. A monitoring plan shall be submitted to the SFPUC for review and approval.

15. (For large excavation) Foundation excavation within the proposed property will likely impact utilities. A work plan needs to be reviewed

and approved by the SFPUC Wastewater Enterprise prior to the commencement of excavation work including, but not limited to, excavation of basements and underground utilities. The project will need to perform pre- and post-CCTV inspection of SFPUC Wastewater Enterprise assets prior to the commencement of any excavation. CCTV inspection performed by the project applicant shall comply with SFPUC standards. Resultant damage shall be remedied by the project applicant.

16. Special foundations such as tiebacks, pressure grout/soil stabilization, etc., that encroach into public rights of way shall include pre- and post-CCTV inspection of SFPUC Wastewater Enterprise assets to ensure no impact from the project.

17. Pre and post-construction videos of SFPUC Wastewater Enterprise assets will be required if construction activities, such as the examples above, are performed. The videos shall be submitted in PACP format and reviewed by the SFPUC Wastewater Enterprise.

18. Dewatering discharge to the sewer system requires review and approval by the SFPUC Wastewater Enterprise.

19. All underground basements shall have a detailed permanent dewatering plan, including but not limited to water quality, estimated flow, etc.

20. The SFPUC Wastewater Enterprise shall be notified prior to the commencement of any construction activities.

21. The project applicant shall reimburse the City for all construction management fees and project oversight during construction.

22. All newly installed sewers shall be air tested and televised according to SFPUC standards. The contractor shall coordinate with SFPUC staff for field witness of CCTV and testing. SFPUC standards can be obtained prior to construction.

23. New manholes will require vacuum testing and new sewers will require either air testing (to applicable ASTM standards) or a Focused Electron Leak Locator (FELL).

24. The project applicant shall provide manhole details, including a requirement for contractor shop drawings.

25. The project applicant shall provide a monitoring plan for the potential settlement of surrounding utilities and buildings.

26. If the development of the subject parcel or parcels creates or replaces 5,000 square feet or more of impervious surface area, the development will be subject to the current SFPUC Stormwater Management Requirements and the owner/subdivider must submit a Stormwater Control Plan in compliance with those requirements to the SFPUC for review and approval.

SFPUC Power Enterprise Comments

Hetch Hetchy Power

San Francisco Administrative Code Section 99 identifies certain types of development projects that present good opportunities for City electric service from the SFPUC. The SFPUC has been providing clean, reliable Hetch Hetchy Power for almost 100 years and is San Francisco's local publicly owned electric utility. The SFPUC provides its customers in new developments with 100% GHG-free electricity at stable, affordable rates. The SFPUC can assess the feasibility of providing clean energy to this project and whether such service would benefit the project and the City's existing electric customers. For more information, please contact HHPower@sfwater.org.

Streetlights

Streetlight work may be required on the sidewalks where work is to be performed by the project applicant. The project applicant will need to fill out the streetlight review application at https://sfpuc.org/streetlights for review and approval. Please follow all streetlight guidelines; guidelines can be found at https://sfpuc.org/streetlights.

SFPUC Real Estate Services Comments

The SFPUC Real Estate Services Division has prepared a separate draft Memorandum of Understanding to (i) state the terms and conditions under which the SFPUC will access, operate, maintain, replace, and repair the SFPUC facilities within the SFFD Fire Training Facility; (ii) confirm the SFPUC's right to use the service area around the SFPUC facilities; and (iii) state the terms and conditions for use by the Parties of the service area around SFPUC facilities. However, the SFPUC is not waiving any rights or interests in the subject property that may exist by law.

The SFPUC will not accept utilities outside of the public right-of-way.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

San Francisco Public Utilities Commission
Water Enterprise
City Distribution Division
Engineering Section
cddengineering@sfwater.org

Attachment A
SFFD Fire Training Facility - Blocks 4852 and 4877
In City Project Review CDD Comments

The San Francisco Public Utilities Commission (SFPUC), City Distribution Division (CDD) Engineering Section has reviewed your submittal, dated April 18, 2023, for the above-mentioned project.

CDD has limited its review to only aspects of the plans pertaining to or impacting Potable Water, Recycled Water and Auxiliary Water Supply System (AWSS) utility infrastructure. The submitter shall be responsible for submitting separate sets of drawings to the SFPUC Wastewater and Power Enterprises to obtain comments regarding wastewater and power infrastructure. The SFPUC contact information is as follows:

Water	Power	Wastewater
cddengineering@sfwater.org	streetlights@sfwater.org	SewerInspections@sfwater.org

After reviewing the provided document(s), CDD takes no exceptions to the proposed plans. Please submit any questions regarding this memo to cddengineering@sfwater.org.

NO EXCEPTIONS TAKEN

Plans have been reviewed for general conformance with City Distribution Division (CDD) design standards and specifications. The project sponsor shall be responsible for ensuring continued compliance with CDD design standards and specifications.

Date 4/21/2023

By Thanh Nguyen

Attachments:

a. Review Comment Log - SFFD Fire Training Facility - Blocks 4852 and 4877 In City Proj Rev_CDD Comments
b. Links to Relevant Plans, Specifications and Other Standards

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Review Comment Log
Potable, Recycled, Auxiliary Water Supply Systems

Project: **SFFD Fire Training Facility - Blocks 4852 and 4877 In City Proj Rev_CDD Comments**
Submittal Date: **4/18/2023**
Review Date: **4/21/2023**
Submittal Type: In-City Project Review
Submittal Result: No Exceptions Taken

Abbreviations:

(N)	New
(E)	Existing
LPFH	Low Pressure Fire Hydrant
AWSS	Auxiliary Water Supply System
CIP	Cast Iron Pipe
DIP	Ductile Iron Pipe
CDD	SPFUC City Distribution Division
N,E,S,W	North, East, South, West

Comment No.	Drawing No. / Specification Page No.	SFPUC Standard / Regulatory Requirement No.	Comment
Water Service Application			Projects requiring installation of (N) water service(s), termination of (E) water service(s), and/or the installation, relocation, or removal of other water facilities must formally apply for service/work to be performed at: SFPUC Customer Service Bureau New Installations Unit 525 Golden Gate Avenue San Francisco CA 94103 415-551-2900 / customerservice@sfwater.org Project sponsors are asked to initiate the application process a minimum of three (3) months before service is needed. To avoid delays in processing, **plans clearly outlining the scope of all work being requested shall be submitted at the time of application.** Additional information regarding the application process can be found at: sfwater.org/reqs

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Review Comment Log
Potable, Recycled, Auxiliary Water Supply Systems

Project: **SFFD Fire Training Facility - Blocks 4852 and 4877 In City Proj Rev_CDD Comments**
Submittal Date: **4/18/2023**
Review Date: **4/21/2023**
Submittal Type: In-City Project Review
Submittal Result: No Exceptions Taken

Abbreviations:

(N)	New
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LPFH	Low Pressure Fire Hydrant
AWSS	Auxiliary Water Supply System
CIP	Cast Iron Pipe
DIP	Ductile Iron Pipe
CDD	SPFUC City Distribution Division
N,E,S,W	North, East, South, West

Comment No.	Drawing No. / Specification Page No.	SFPUC Standard / Regulatory Requirement No.	Comment
Installation & Maintenance Responsibilities			Project sponsors should note that CDD installs new domestic, irrigation, and recycled water meters in the sidewalk immediately adjacent to the finished curb line or as near thereto as possible. CDD installs new fire service laterals to a point one (1) foot inside the finished curb line (1), terminating with a temporary blank flange. CDD will maintain all water facilities upstream of and including the meter (for domestic, irrigation, and recycled water) or flange (for fire water), while the property owner is responsible for installing and maintaining piping downstream of the meter or flange. For more information, project sponsors should refer to “Rules and Regulations Governing Water Service to Customers,” which can be found at: https://sfpuc.org/sites/default/files/accounts-and-services/RulesRegs-waterservice_11FEB2020.pdf.

Links to Relevant Plans, Specifications & Other Standards Cited in Comments

SFPUC Asset Protection Standards

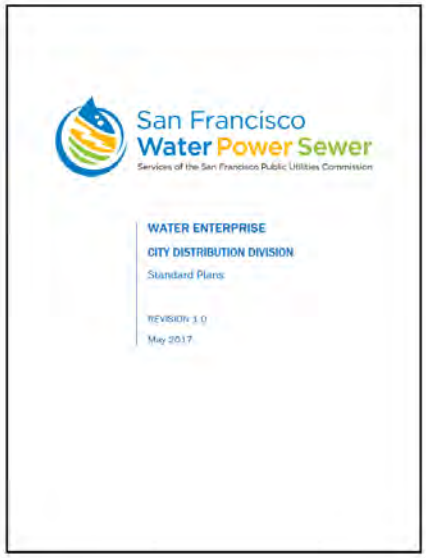
For the protection of existing SFPUC Assets in existing SFPUC Rights-of-Way or Easements

https://sfpuc.org/construction-contracts/design-guidelines-standards/asset-protection-standards

SFPUC Rules and Regulations Governing Water Service to Customers

Rules and regulations governing the installation and maintenance of potable water service.

https://sfpuc.org/sites/default/files/accounts-and-services/RulesRegs-waterservice_11FEB2020.pdf



City Distribution Division Standard Specifications and Plans

For the installation of new potable water mains and water services

https://sfpuc.org/construction-contracts/design-guidelines-standards/water-main-installation

Exhibit D
SFPUC Asset Protection Standards

[attached]

SFPUC ASSET PROTECTION STANDARDS

Information and Requirements for Proposed Projects in Existing Streets and Public Right-of-Ways

San Francisco
Water
Power
Sewer

Services of the San Francisco Public Utilities Commission

ACKNOWLEDGEMENTS

This Document would not have been possible without the contribution of others. In that regard, the SFPUC appreciates the input provided by the public and a large cross-section of stakeholders including the following City agencies and staff:

San Francisco Public Works

San Francisco Municipal Transportation Agency

San Francisco Planning Department

San Francisco Fire Department

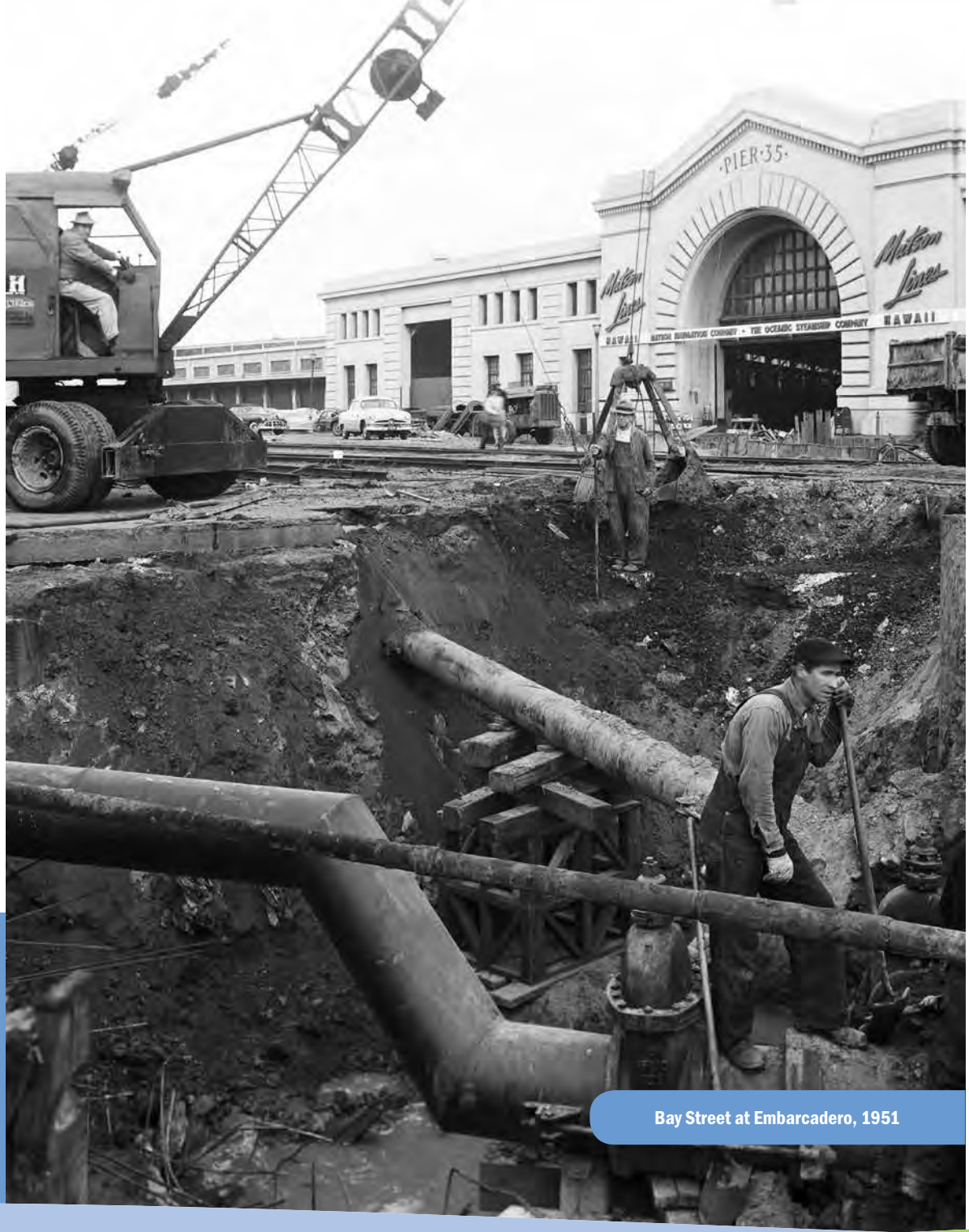
Office of Supervisor Scott Wiener

And other members and agencies of the working groups for the Standards.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

Version: May 2017

The San Francisco Public Utilities Commission owns and operates over 1,500 miles of water infrastructure and 1,000 miles of wastewater infrastructure within the limits of the City of San Francisco. Some of this infrastructure dates back to the mid-19th century, yet continues to provide the City with critical utility service. The SFPUC Asset Protection Standards have been implemented to protect the integrity and continued operation of this infrastructure within an ever-changing and complex city environment.



Bay Street at Embarcadero, 1951

Present Day

CONTENTS

MESSAGE FROM THE GENERAL MANAGER

It's my pleasure to sign into effect and issue Asset Protection Standards for the San Francisco Public Utilities Commission (SFPUC). This is a major milestone that evolved from a highly successful collaborative effort to establish safer, greener and more enjoyable streets, while preserving and protecting critical infrastructure.

Over the past two years, the SFPUC met with City agencies and stakeholders to identify and codify standards that protect our existing water and sewer infrastructure in the face of a changing City landscape. As stewards of the built environment, all City agencies share in responsibilities for streetscaping improvements, such as pedestrian and bicyclist safety improvements, public transit initiatives, and beautification projects, to make our streets more accessible, safe and attractive.

Our critical, yet unseen, infrastructure underlying roadways and sidewalks are impacted by these improvement projects, and thus require careful planning. In order to protect the function of our water and sewer infrastructure and provide access for regular maintenance, we have developed these Asset Protection Standards for use by street improvement projects during planning and implementation.

We appreciate your support of these Asset Protection Standards and look forward to working with you and other City stakeholders toward the successful implementation of a multitude of future public right-of-way programs and projects.

HARLAN L. KELLY, JR.
GENERAL MANAGER

INTRODUCTION

The City of San Francisco (the City) is a dynamic and evolving urban environment. In order to enhance public safety and the streetscape experience, the City is continually working to improve public right-of-ways through programs such as the ***Better Streets Plan*** and ***Complete Streets Policy***. As a City agency, the San Francisco Public Utilities Commission (SFPUC) supports these programs through investments and innovations in water, wastewater, power, and green stormwater infrastructure. In order to continue to best serve the community while complying with the complex regulatory environment as a water and wastewater utility, the SFPUC has developed standards detailed in this document for the protection of the City's existing water and wastewater assets (Standards). The Standards support streetscape innovation while enabling effective and reliable delivery of water and conveyance of stormwater and sewage, while preserving infrastructure functionality and accessibility during planned and emergency operations.

DEVELOPMENT OF THE STANDARDS

The Standards were originally published as the "SFPUC Wastewater & Water Standards for Surface Improvement Projects" in June 2014. After collaborating with and receiving feedback from a large range of stakeholders, an updated draft version of the Standards (with the revised title "SFPUC Standards for the Protection of Wastewater & Water Assets") was issued in February 2015. The SFPUC again solicited comments on the updated draft version of the Standards, and the resulting final Standards are presented herein.

OVERVIEW

APPLICABILITY

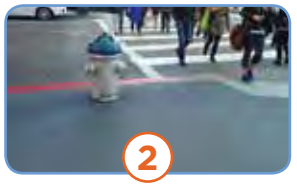
San Francisco Charter section 4.126 authorizes the General Manager to adopt rules and regulations governing matters within the jurisdiction of the San Francisco Public Utilities Commission (SFPUC), subject to subsequent action by the Commission, if any, to modify the General Manager's exercise of such authority. The Standards are necessary regulations that provide guidance to projects in the public right-of-way to protect, maintain the intended function, maintain system performance and level-of-service requirements, and minimize the risk of damage of SFPUC assets while still being accessible for regular and emergency operations and maintenance.

The Standards apply to all projects proposed in a public right-of-way that contains existing SFPUC water and/or wastewater assets. Note other federal, state, and local codes not listed herein may also apply. The Standards do not apply to designs for new or rededicated public right-of-ways which are specifically subject to San Francisco subdivision maps and regulations, which can be found on the ***San Francisco Public Works Webpage***.

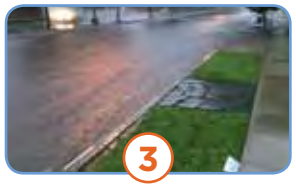
HOW TO USE THIS DOCUMENT

The Standards address ten areas of improvement to public right-of-ways:

PAVING



SIDEWALKS, CURBS AND GUTTERS



STREET PROFILE CHANGES

NEW DRAINAGE INFRASTRUCTURE

GREEN STORMWATER INFRASTRUCTURE

VEGETATION

HYDRANTS

TEMPORARY STRUCTURES

PERMANENT STRUCTURES

UNDERGROUND UTILITY CLEARANCES

Presentation of each standard includes: a brief overview of the context and need for the standard; details on the standard as related to water and wastewater assets; and identification of key outcomes from successful implementation of the standard.

Also included in the Standards is information on the review process for projects potentially impacting water and wastewater assets in the public right-of-way; a description of the related variance review and approval process; and detail drawings accompanying the standards.

During the early stages of improvement project review and permitting, the proposed project will undergo a formal project review by the SFPUC (see ***Project Review*** on page 26). This process enables the SFPUC to collaborate with the project sponsor to ensure project completion includes appropriate protection of infrastructure assets.

USERS

The Standards are intended for entities that are proposing improvements to public right-of-ways. Users of the Stardards are anticipated to include staff from City departments, designers, planners, developers, and other project sponsors.

STANDARD 1: **PAVING**

OVERVIEW

Paving within public right-of-ways acts not only as a medium for vehicular traffic, but also as a protective barrier for underground utilities. As such, it is important that paving materials installed above SFPUC assets meet applicable loading requirements and are readily available for SFPUC crews and contractors to make street repairs following planned utility replacement projects and emergency utility repair work.

WATER

PROTECTION STANDARDS: WATER

W1.a Paving materials installed above or adjacent to water assets shall be approved by San Francisco Public Works (Public Works) – Bureau of Streets and Mapping (BSM) prior to installation.

W1.b Paving materials installed above water assets shall meet H-20 traffic loading ratings (as defined by the American Association of State Highway Transportation Officials).

W1.c Water valve boxes shall be adjusted to be flush with paving surfaces per ***Standard Plan CDD-LP-253*** and ***CDD-LP-254***.

W1.d Paving shall not obstruct or obscure water castings.

Paving above and around SFPUC assets protects those assets from traffic loads.

WASTEWATER

PROTECTION STANDARDS: WASTEWATER

S1.a Paving materials installed above or adjacent to wastewater assets shall be approved by Public Works – Bureau of Streets and Mapping (BSM) prior to installation.

S1.b Paving materials installed above wastewater assets shall meet H-20 traffic loading ratings (as defined by the American Association of State Highway Transportation Officials).

S1.c Paving shall not diminish the overland flow capacity of the street (see ***Standard S3*** for additional requirements).

S1.d Paving shall not obstruct or obscure wastewater castings.

A solid, paved working surface is necessary around manholes to facilitate maintenance work.

OUTCOMES

When project plans adhere to SFPUC Asset Protection Standards, and Street Encroachment Permits and maintenance agreements that include paving requirements have been issued by BSM, the SFPUC can ensure that:

- Below-ground utilities are protected from potentially damaging vehicle loads, thus protecting public health and safety.
- SFPUC crews and contractors are able to access paving restoration requirements, particularly for non-standard paving materials and features. This allows for expeditious restoration of those surfaces following planned and unplanned utility work, minimizing disruption to the public.
- Non-standard paving does not inhibit SFPUC's ability to open access covers for shutoff valves, manholes, removable access slabs and catchbasins.

STANDARD 2: **SIDEWALKS, SIDEWALK EXTENSIONS, BULB OUTS, CURBS & GUTTERS**

OVERVIEW

Sidewalks, curbs and gutters delineate the boundaries of pedestrian and vehicular traffic, as well as direct and control the flow of stormwater runoff on city streets. Thus, it is important that these facilities are designed not only to meet the goals of the ***Better Streets Plan***, but also to ensure the streets' ability to convey runoff, and to maintain access to SFPUC facilities (such as valves, vaults, and manholes).

WATER

PROTECTION STANDARDS: WATER

W2.a New curb ramps shall be built in accordance with ***Public Works Accessible Street Crossing Standards***, with the following additional conditions:

i. Curb ramps shall not be constructed in the same location as existing water valves.

ii. Curb ramp flared sides shall not be constructed in the same location as existing water meter boxes with dimensions greater than ten (10) inches wide by fifteen (15) inches long (1-inch meter box).

iii. Curb ramp detectable warning areas shall not be constructed in the same location as any existing water utility box.

W2.b Curbs and gutters shall not be built in the same location as existing valve boxes and manholes. The lip of any new gutter shall be horizontally offset from the outside edge of any valve box / manhole by a minimum of six (6) inches. The face of any new curb shall be horizontally offset from the outside edge of a valve box / manhole by a minimum of eighteen (18) inches. See ***Detail APS WS2.1***.

Properly designed bulb-outs and sidewalk extensions enhance pedestrian safety while providing continued access to hydrants and other assets for operation and maintenance.

STANDARD 2: **SIDEWALKS, SIDEWALK EXTENSIONS, BULB OUTS, CURBS & GUTTERS**

W2.c Sidewalk encroachment over potable/recycled water assets (***Detail APS W2.2***):

i. Sidewalk and bulb outs longer than one hundred thirty (130) feet, as measured in ***Detail APS W2.2***, shall only be allowed to extend over potable recycled water mains when approved in writing by SFPUC-CDD.

ii. Sidewalk extensions may extend over potable/recycled water lateral service valves, provided the following conditions are satisfied:

- The valve box shall be replaced per ***Standard Plan CDD-LP-254***.
- A clear path of travel a minimum of four (4) feet wide shall be provided for CDD and SFFD staff between the street and the valve as shown in ***Detail APS W2.2***.

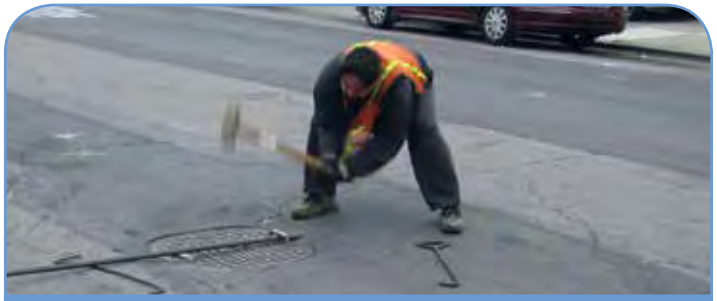
iii. Sidewalk extensions shall not extend over or around potable/recycled water main valves that are in the street under existing conditions. Main valves shall be accessible at all times by CDD and SFFD emergency vehicles.

W2.d Sidewalk encroachment over AWSS assets (***Detail APS W2.3***):

i. Sidewalk and bulb outs longer than one hundred thirty (130) feet, as measured in ***Detail APS W2.3***, shall not extend over AWSS mains.

ii. Sidewalk extensions shall not extend over AWSS valves that are in the street under existing conditions. All AWSS valves need to be accessible at all times by CDD and SFFD emergency vehicles.

W2.e Pedestrian boarding islands and street medians constructed per ***Public Works Standard Plan File 87,172*** shall be considered sidewalks.



Clear space around water valves is necessary to access, operate, and maintain the valves.

PROTECTION STANDARDS: WASTEWATER

S2.a Sidewalk extensions, bulbouts, curbs and gutters shall not be built in the same location as existing manholes. The lip of any new gutter shall be horizontally offset from the outside edge of any manhole frame by a minimum of six (6) inches. The face of any new curb shall be horizontally offset from the outside edge of any manhole frame by a minimum of eighteen (18) inches. (***Detail APS WS2.1***)

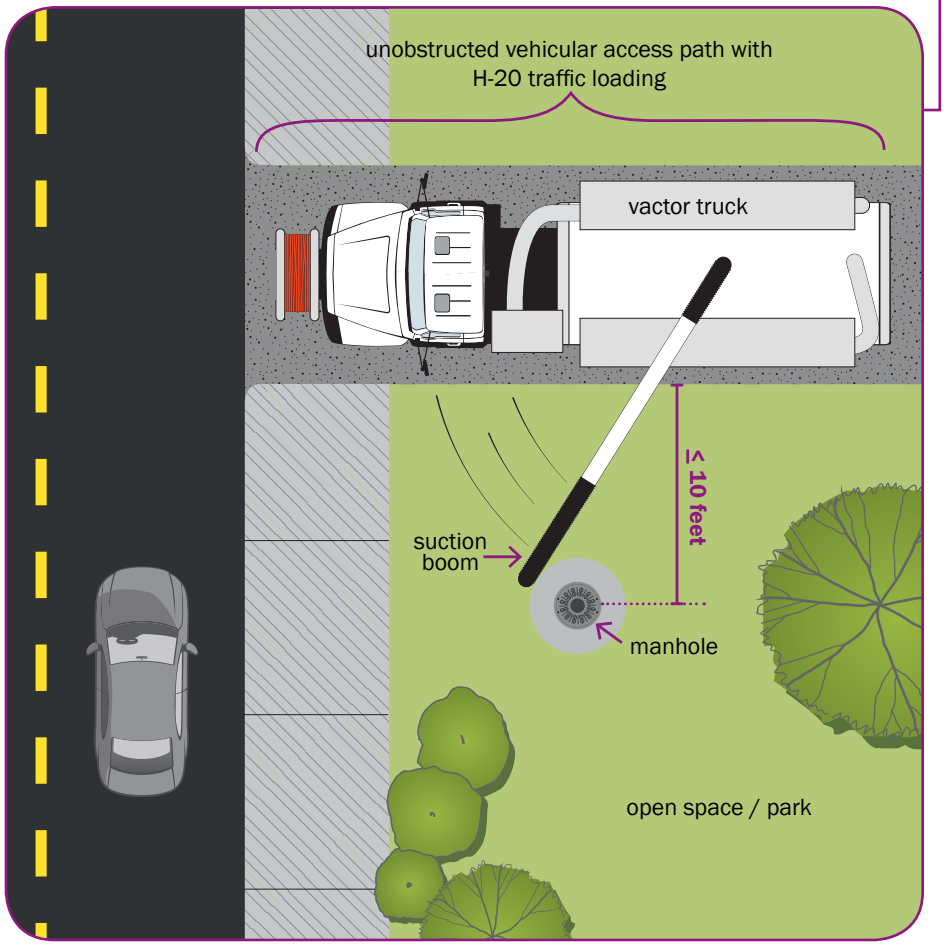
S2.b If a project results in a manhole located outside of a vehicular path of travel, unobstructed vehicular access with H-20 traffic loading shall be provided within ten (10) horizontal feet of the manhole.

S2.c Projects that result in modifications to subsurface drainage infrastructure must maintain a straight culvert connection from all catch basins or drain inlets to a manhole; bends in the culvert connection between the catch basin and manhole are not permitted.

S2.d Sewer Laterals:

- **i.** Positive surface slope shall be maintained from all sewer lateral air vents to the gutter. (***Detail APS S2.4***)
- **ii.** Pedestrian path-of-travel shall avoid the flow path for sewage resulting from a sewer lateral air vent back-up.
- **iii.** When sidewalks are extended into the street, the center of the sewer lateral air vent and trap must be relocated such that the trap fitting terminates at the face of the curb. See ***Detail APS S2.4*** and ***Public Works Standard Plan File 87,196***.
- **iv.** Sewer laterals shall meet requirements outlined in the ***SFPUC Sewer Lateral Standard Details and Specifications***.

S2.e Pedestrian boarding islands constructed per ***Public Works Standard Plan File 87,172*** shall be considered sidewalks.

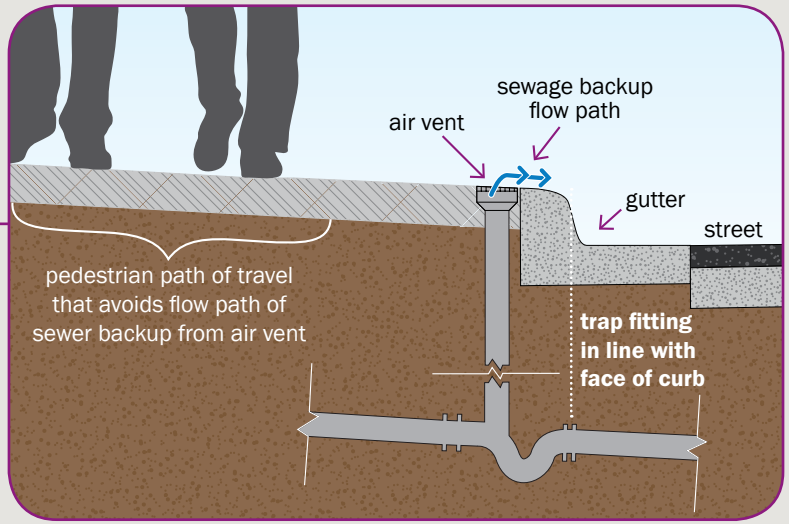


OUTCOMES

Adherence to the SFPUC Standards ensures that SFPUC staff will be able to quickly access and operate underground water and wastewater utilities when required for planned or emergency repair projects. More specifically, these standards ensure:

- Curb ramps are compliant with the Americans with Disabilities Act (ADA) and safe for pedestrians.
- Pedestrians are protected from tripping hazards posed by at- and above-grade SFPUC utility access points.
- Clear space around manholes and valve boxes is maintained so SFPUC crews can properly open and laydown valve covers and heavy manhole lids, and safely operate the facilities within.
- SFPUC utility access points are accessible by heavy equipment.
- Valve boxes remain plumb with valve operating nuts, allowing for continued proper operation.
- Sewer backups are kept outside of the pedestrian path of travel to minimize tripping hazards and exposure to sewer excursions.
- Overland runoff properly flows to the SFPUC combined sewer system and system performance is optimized.

A paved working surface is needed around wastewater manholes to facilitate access to the wastewater collection system for routine inspection and maintenance.



STANDARD 3: **STREET PROFILE CHANGES**

OVERVIEW

The curb, gutter and street surface provide an essential drainage function during storms. Changes to the profile or addition of other surface features in right-of-ways and easements may necessitate additional project elements that maintain or improve drainage and/or overland flow. It is important that designers consider the effects of proposed street improvements on stormwater flow and drainage, and appropriately mitigate designs to minimize the risk of flooding, protect public health and safety, and maintain or improve system performance.

WATER

PROTECTION STANDARDS: WATER

W3.a Changes to the profile of right-of-ways and/or easements above water assets may necessitate the adjustment, relocation, and/or replacement of those facilities. The minimum and maximum cover outlined in ***Detail APS WS3.1*** shall be maintained.

WASTEWATER

PROTECTION STANDARDS: WASTEWATER

S3.a Changes to the profile of right-of-ways and/or easements above wastewater assets may necessitate the adjustment, relocation, and/or replacement of those facilities. The minimum and maximum cover outlined in ***Detail APS WS3.1*** shall be maintained.

S3.b Projects that may alter drainage and/or overland flow management capacity of the street shall be screened by SFPUC.

S3.c Projects identified through screening to impact drainage and/or overland flow management shall:

i. Fund a hydraulic analysis of the impact and appropriate mitigation of the project by incorporating recommended project elements to maintain drainage to the collection system.

ii. Incorporate recommended project elements to maintain or improve the street's capacity for overland flow management of stormwater at the pre-project level or better. SFPUC may evaluate additional project elements to improve drainage and/or overland flow.

The street profile is designed in part to convey stormwater to collection points, such as bioretention planters and catch basins. Changes to the street profile can cause inadvertent and detrimental impacts related to runoff and flooding.

OUTCOMES

When designed and constructed properly, projects that change the street profile, such as curb extensions, medians, modified street grades, and raised crosswalks or cycle tracks should enhance the streetscape and public safety without deleterious effects of potential flooding and infrastructure damage. Specifically:

- The ability of a street to accommodate stormwater flows and system performance is maintained or improved.
- Underground SFPUC assets are protected from impacts from heavy vehicle loads (that may otherwise occur if a project reduces the required amount of cover above buried utility assets).

OVERVIEW

Drain connections to catch basins or stormwater inlets can exacerbate localized ponding, cause upstream flooding or backups, introduce sewer odors, and increase future catch basin relocation costs. Please note, this section does not apply to water assets.

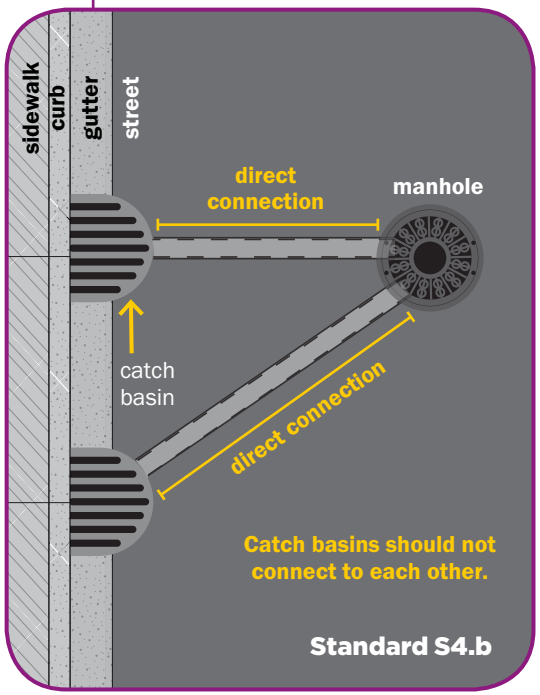
WASTEWATER

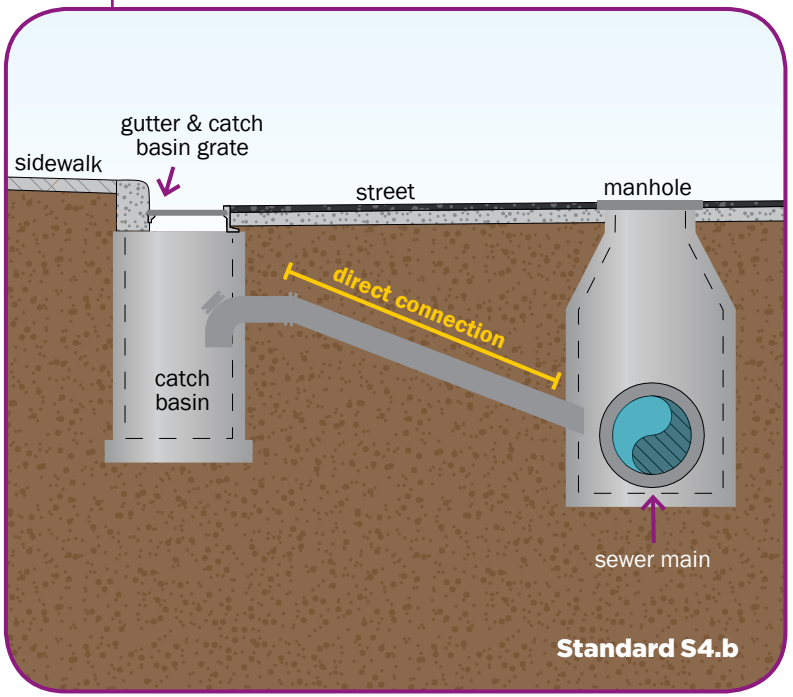
PROTECTION STANDARDS: WASTEWATER

S4.a New drains are not permitted to connect to the back of a catch basin or stormwater inlet.

S4.b All new catch basins shall connect directly to a manhole or sewer main larger than forty-two (42) inches in diameter or three (3) feet by five (5) feet in size via a culvert. Catch basins are not permitted to be connected to one another prior to connection to a manhole or sewer main.

S4.c Trench and railway track drains shall be connected to a sand trap device prior to connection to the SFPUC wastewater collection system.





OUTCOMES

Preventing ponding and flooding is necessary in order to preserve public health and safety because ponding and flooding may cause sewage backup and blockage of streets. When new drainage infrastructure is constructed appropriately, sidewalks and streets are drained effectively, thus minimizing potential ponding and flooding.

STANDARD 5: **GREEN STORMWATER INFRASTRUCTURE**

OVERVIEW

Green stormwater infrastructure can provide peak flow volume control and treatment of stormwater runoff by providing stormwater storage, infiltration into native soil, and/or filtration. The SFPUC encourages the inclusion of green infrastructure into surface improvement projects when appropriate for the site to reduce stormwater flow to the sewer system. However, green infrastructure above and directly adjacent to other water and wastewater infrastructure can impede SFPUC access to these assets in the case of operation, maintenance, and repair or replacement activities.

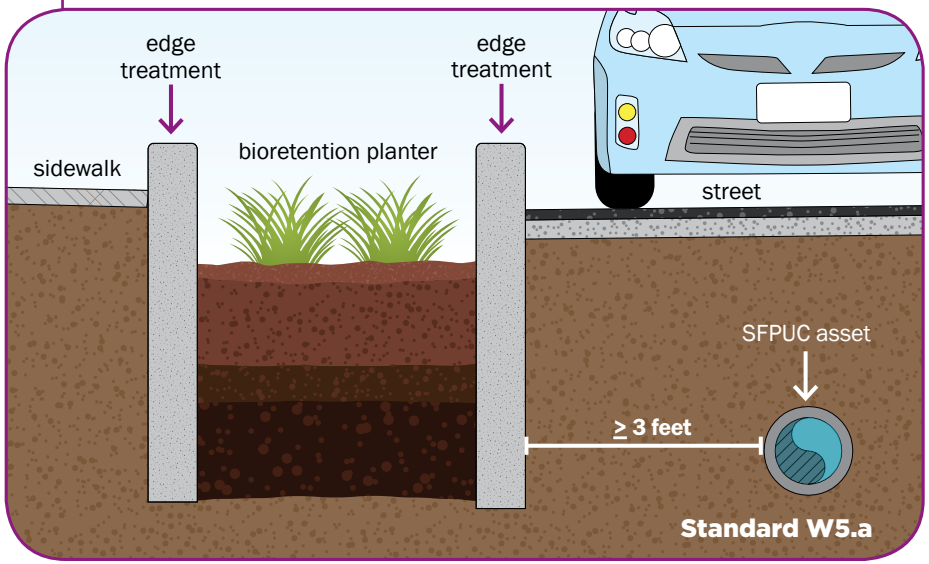
WATER

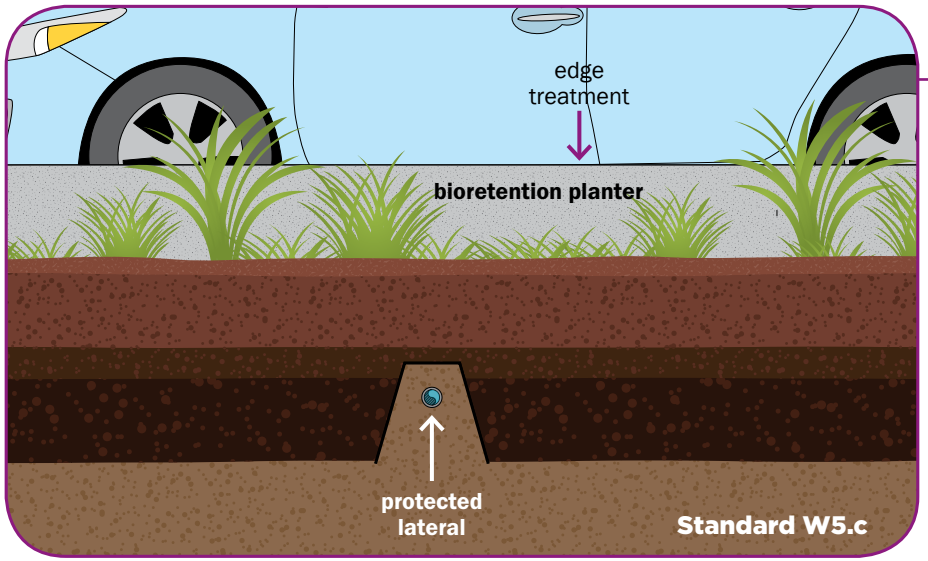
PROTECTION STANDARDS: WATER

W5.a Bioretention planters and permeable pavement edge treatments are not permitted above or within three (3) horizontal feet of the outside diameter of a water main or valve box / manhole.

W5.b The footprint of bioretention planters are not permitted to contain operable water surface facilities and service points (including but not limited to water valves, meter boxes, and manholes).

W5.c Projects that install bioretention planters or permeable pavement in the parking lane above potable water service laterals shall protect the water service laterals through the entire width of the planter or permeable pavement as per the ***SFPUC Green Infrastructure Typical Details, Phase II***.





WASTEWATER

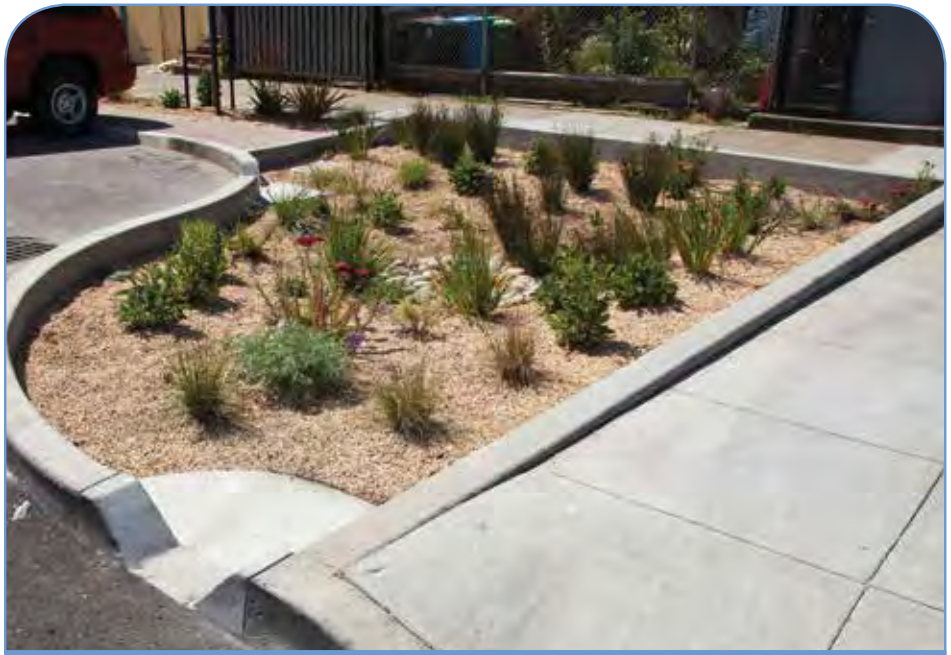
PROTECTION STANDARDS: WASTEWATER

S5.a Bioretention planters and permeable pavement edge treatments are not permitted above or within three (3) horizontal feet of the outside diameter of a sewer main or manhole cover frame.

S5.b Projects are not permitted to modify the drainage management area, size, or material of existing SFPUC green infrastructure assets.

S5.c Sewer Laterals

- **i.** Projects that install bioretention planters or permeable pavement in the parking lane above sewer laterals shall protect the sewer lateral through the entire width of the planter or permeable pavement as per the ***SFPUC Green Infrastructure Typical Details, Phase II***.
- **ii.** Sewer laterals shall meet requirements outlined in the ***SFPUC Sewer Lateral Standard Details and Specifications***.



Typical Green Stormwater Infrastructure bioretention planter

OUTCOMES

Proper design and construction of green infrastructure projects enhances stormwater management and quality and provides aesthetic benefits to the public while also protecting and allowing operation and maintenance of below-ground utilities. The Standards ensure:

- The continued structural integrity and functioning of subsurface infrastructure, such as potable water laterals.
- Adequate clearance between green infrastructure and other subsurface utilities, ensuring SFPUC crews can access those utilities for required maintenance with minimum public disruption.
- Existing green infrastructure will continue to effectively collect and treat stormwater.

STANDARD 6: **VEGETATION**

OVERVIEW

Vegetation above and directly adjacent to water and wastewater assets blocks SFPUC access to these assets in the case of future maintenance, repair, or replacement activities. Project proponents should be mindful of existing utilities when planning and installing vegetation within public right-of-ways or utility easements.

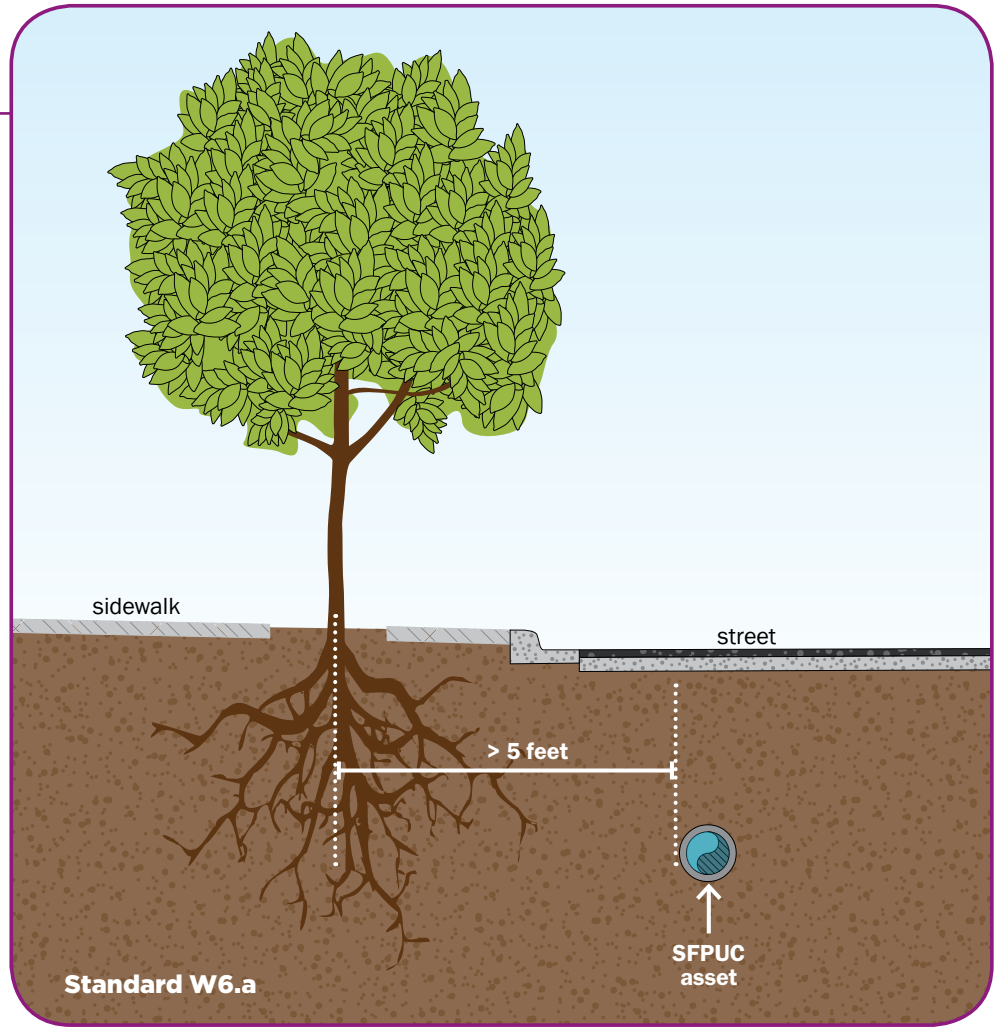
WATER

PROTECTION STANDARDS: WATER

W6.a Trees shall not be located within five (5) horizontal feet of a water asset, from the centerline of the tree to the outside edge of the asset.

W6.b Non-tree vegetation is permitted above or adjacent to water assets, provided the following conditions are met:

- **i.** Planted areas shall not be constructed around existing water valves.
- **ii.** Planted areas shall not be constructed around existing water meter boxes and vaults greater than twenty (20) inches wide by thirty-three (33) inches long (2-inch meter box).
- **iii.** The planted area shall not contain vegetation that may obstruct or overgrow meter boxes.
- **iv.** The planted area shall not include vegetation containing thorns.



WASTEWATER

PROTECTION STANDARDS: WASTEWATER

S6.a Trees shall not be located within five (5) horizontal feet of a wastewater asset, from the centerline of the tree to the outside edge of the asset.

S6.b Non-tree vegetation is permitted above or adjacent to wastewater assets.

S6.c If the project results in a manhole(s) located in a planted area, the project shall include a minimum eighteen (18) inch wide reinforced concrete collar around the manhole(s).

S6.d Sewer Laterals

- **i.** Projects that result in a lateral air vent(s) located in a planted area shall either retain the existing paving within six (6) inches of the lateral air vent(s) or include a new concrete pad.
- **ii.** Sewer laterals shall meet requirements outlined in the ***SFPUC Sewer Lateral Standard Details and Specifications***.

OUTCOMES

Adherence to the Standards promotes protection of both vegetation and underground infrastructure from damage. Specifically, the Standards ensure:

- Assets in otherwise good condition are protected from tree roots which may push and shift assets over time, leading to cracks or breaks in the assets.
- Enhanced protection of trees from damage or removal during required utility maintenance.
- Retained integrity and accessibility of utility access points such as valve boxes, meter boxes, vaults, sewer vents and manholes.

Water service installation in planter area with no trees

STANDARD 7: **HYDRANTS**

OVERVIEW

Hydrants are located throughout the City so that the Fire Department can fight fires and protect the lives and property of the people of San Francisco. Hydrants must be readily accessible by the Fire Department and SFPUC staff during emergencies and for regular planned maintenance.

WATER

PROTECTION STANDARDS: WATER

W7.a Changes to right-of-ways shall not encroach on the San Francisco Fire Department and San Francisco Water Department operational clearance requirements presented in ***Detail APS W7.1*** and ***Detail APS W7.2***.

WASTEWATER

PROTECTION STANDARDS: WASTEWATER

S7.a Fire hydrants shall be a minimum of three (3) horizontal feet away from wastewater assets (including sewer lateral and sewer lateral air vents), and shall not block SFPUC access to wastewater assets.

Ensuring hydrants remain visible and accessible from the street allows the San Francisco Fire Department to expeditiously respond to fires when hydrants are needed.

OUTCOMES

Fire hydrants are essential in protecting the public in case of fire emergencies. Maintaining appropriate operational clearances as described in the Standards ensures:

- SFPUC staff can use required trucks and equipment to maintain and replace fire hydrants and ensure that all hydrants within the City are operable and ready for fire-suppression service.
- San Francisco Fire Department Firefighters can quickly access and use fire hydrants during emergencies.
- SFPUC staff have ongoing access to water and wastewater assets that adjoin hydrants and fire-suppresion water systems.

STANDARD 8: **TEMPORARY STRUCTURES**

OVERVIEW

Temporary improvements above water and wastewater assets may damage water and wastewater assets, impede the flow of surface water to the sewer, or limit access for routine or emergency maintenance, repair or replacement. With this in mind, it is important that temporary structures maintain minimum clearances from SFPUC assets per the standards below.

WATER

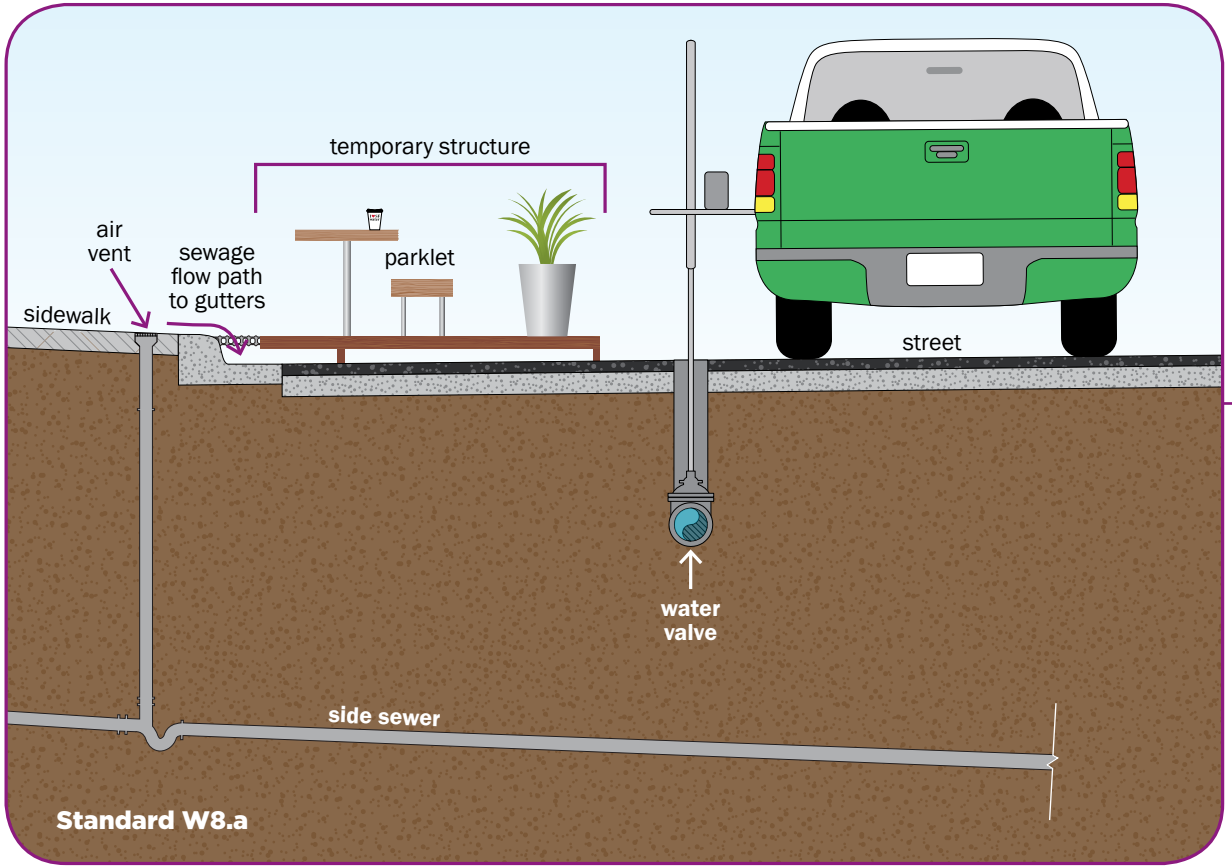
PROTECTION STANDARDS: WATER

W8.a Owners of temporary structures shall remove and/or relocate temporary structures as required for the SFPUC to perform scheduled repair and maintenance of water assets.

W8.b Temporary improvements shall not be placed above water meter boxes, vaults or other surface access points to water assets.

i. Temporary structures shall not encroach on the water valve operational space required for valve operation as presented in ***Detail APS W8.1***.

ii. Temporary structures shall be a minimum of eighteen (18) inches from the outside edge of any water service meter box or vault.



PROTECTION STANDARDS: WASTEWATER

S8.a Temporary Structures above wastewater assets shall not exceed loads defined in H-20 design criteria.

S8.b Temporary structures shall not impede the curbside flow of drainage during a storm event. Refer to ***Standard S3.a and S3.b*** for overland flow conveyance analysis requirements.

S8.c Owners of temporary structures shall remove and/or relocate temporary structures as required for the SFPUC to perform scheduled repair and maintenance of wastewater assets.

S8.d Temporary structures shall not be placed above manholes or other surface access points to wastewater assets. Temporary structures shall be a minimum of eighteen (18) inches from the edge of any manhole cover frame.

S8.e Sewer Laterals:

- **i.** Temporary structures shall be a minimum of eighteen (18) inches from the outside edge of any sewer lateral air vent.
- **ii.** Temporary structures shall not impede the flow of sewage backups from the sewer lateral air vent to the gutter. (***Detail APS S8.2***)
- **iii.** Sewer laterals shall meet requirements outlined in the ***SFPUC Sewer Lateral Standard Details and Specifications.***

OUTCOMES

Access to critical infrastructure for routine maintenance or emergency procedures is available when temporary structures are appropriately designed and installed. Specific outcomes include the following:

- Utility access points such as valve boxes, meter boxes, vaults, sewer vents and manholes remain accessible for maintenance and operation of underground assets.
- Stormwater flow over the street and through gutters will not be unreasonably impeded by temporary structures, preventing localized flooding and allowing overland flow to continue to catch basins.
- Flow from sewage backups out of side sewer vents will not be unreasonably impeded by temporary structures, preventing localized ponding on sidewalks and limiting public exposure to raw sewage.
- Below ground utilities are protected from temporary structure loads.

STANDARD 9: **PERMANENT STRUCTURES**

OVERVIEW

Permanent structures are features that are not readily movable without the need of a special tradesman (e.g., buildings and large site furnishings including pergolas, street lights, other poles, and shade structures that are not movable). Permanent structures above water and wastewater assets may unreasonably limit the SFPUC's ability to access those assets to perform routine or emergency maintenance or repair. With this in mind, it is important that minimum setbacks are provided between permanent structures and buried SFPUC infrastructure.

WATER

PROTECTION STANDARDS: WATER

W9.a Permanent structures shall not be located within the equipment staging envelope shown in ***Detail APS WS9.1*** and ***Detail APS WS9.2***. A minimum of ten (10) horizontal feet shall be clear of permanent structures on one side of the centerline of a water asset and a minimum of fifteen (15) horizontal feet shall be clear of permanent structures on the opposite side. Within this area, a minimum of twenty (20) vertical feet above grade shall be clear of permanent structures. Exceptions are as follows:

i. Permanent structures with a dimension of five (5) feet or smaller as measured parallel to a water asset are permitted within the equipment staging envelope, but shall not be located within five (5) horizontal feet of the outside diameter of a water asset or twenty (20) feet of an adjacent permanent structure within the staging envelope (***Detail APS WS9.1***). The outside edge of the foundation of any poles (OCS, lights) shall not be located within five (5) horizontal feet of the outside diameter of a water asset.

ii. Water laterals shall have minimum clearance from permanent structures specified in ***Standard W9.e***.

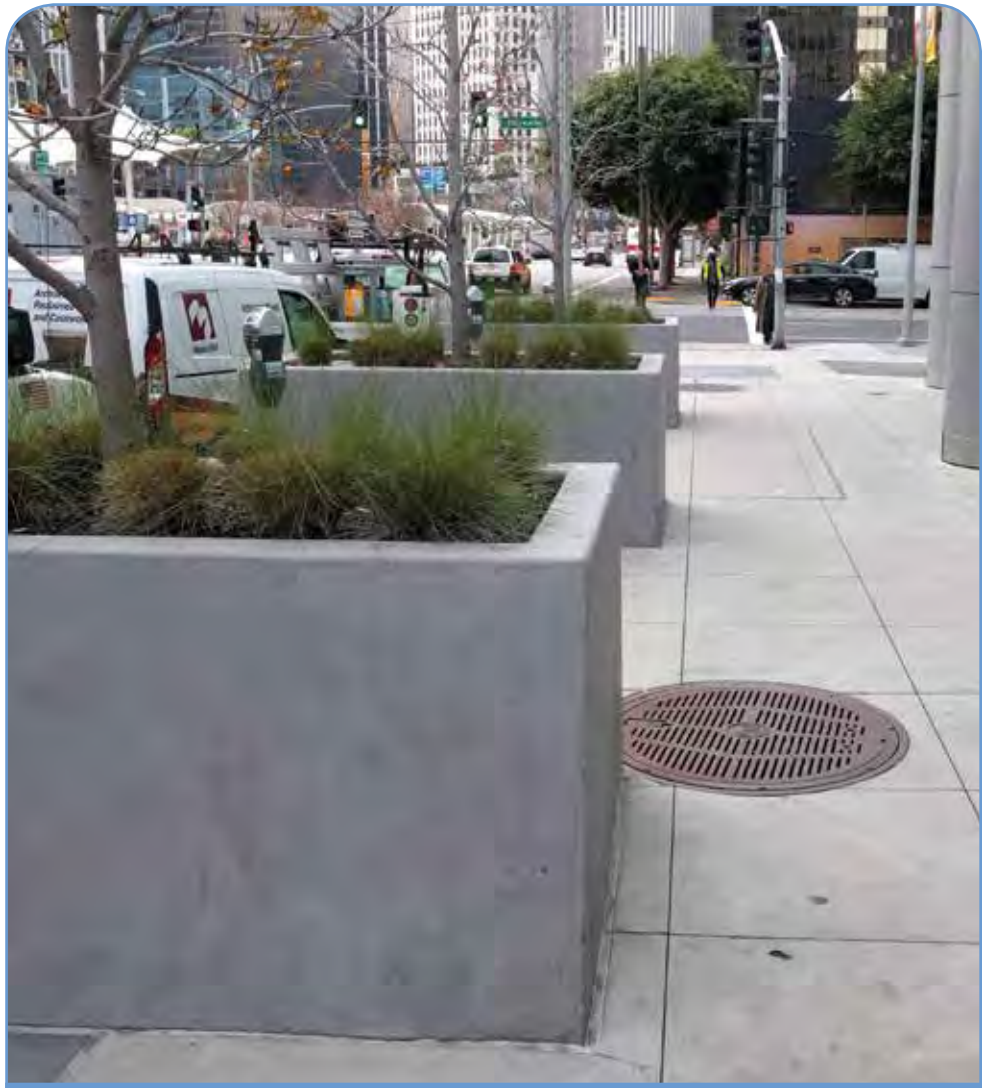
Utility excavation work for installation, maintenance, and emergency repair projects requires the use of heavy equipment. To facilitate access for this equipment, permanent structures must not be installed within the "equipment staging envelope" (Detail APS WS9.1 and Detail APS WS9.2).

W9.b Tracks and track slabs shall not be located above water assets that run parallel to the tracks. Dedicated transit right-of-ways shall provide a minimum of thirteen (13) horizontal feet between the nearest OCS wire and the outside edge of the water asset. For rail and transit projects than include site constraints where these clearances are not achievable, SFPUC staff will work with project proponents to determine clearances that will ensure SFPUC has continued safe access to SFPUC assets and that minimize disruptions to public transit operations.

W9.c Raised boarding platforms (with a boarding grade more than eight (8) vertical inches above the grade of the adjacent traffic lane) shall be considered permanent structures. For rail and transit projects that include site constraints where these clearances are not achievable, SFPUC staff will work with project proponents to determine clearances that will ensure SFPUC has continued safe access to SFPUC assets and that minimize disruptions to public transit operations.

W9.d Permanent structures, including but not limited to fences and raised boarding platforms shall not block maintenance vehicle access to valves, hydrants, manholes, and other operational appurtenances and/or access points of the water/AWSS distribution system.

W9.e Permanent structures shall not be located above or within two (2) horizontal feet of the outside edge of water service laterals and meter boxes / vaults.



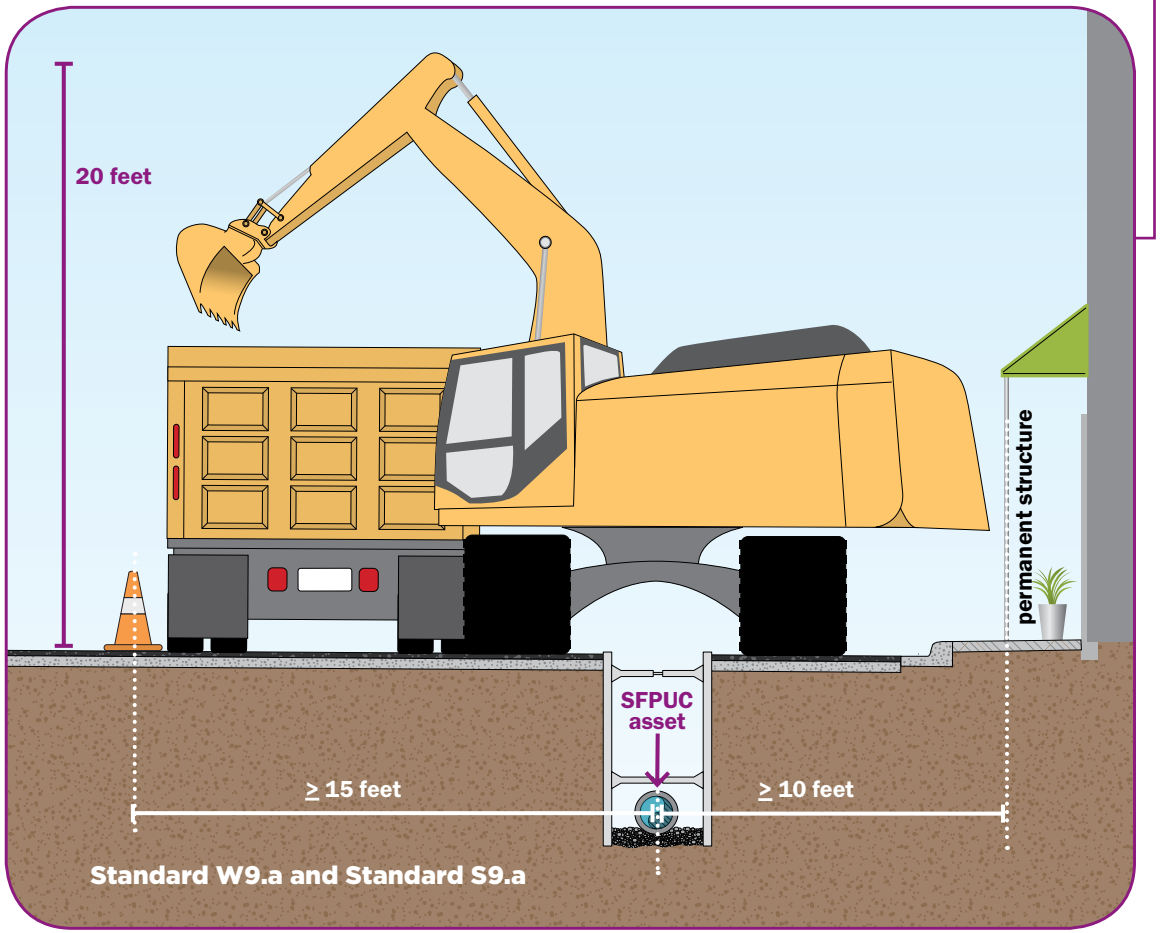
Raised planter boxes (such as the ones pictured) are considered permanent structures, but may be allowable with adequate spacing (Standard W9.a.i and Detail APS WS9.1).

PROTECTION STANDARDS: WASTEWATER

S9.a Permanent structures shall not be located within the equipment staging envelope shown in ***Detail APS WS9.1*** and ***Detail APS WS9.2***. A minimum of ten (10) horizontal feet shall be clear of permanent structures on one side of the centerline of a wastewater asset and a minimum of fifteen (15) horizontal feet shall be clear of permanent structures on the opposite side. A minimum of twenty (20) vertical feet above grade shall be clear of permanent structures. Exceptions are as follows:

i. Permanent structures with a dimension of five (5) feet or smaller as measured parallel to a wastewater asset are permitted within the equipment staging envelope, but shall not be located within five (5) horizontal feet of the outside diameter of a wastewater asset or twenty (20) feet of an adjacent permanent structure within the staging envelope (***Detail APS WS9.1***). The outside edge of the foundation of any poles (OCS, lights) shall not be located within five (5) horizontal feet of the outside diameter of a wastewater asset.

ii. Sewer Laterals shall have minimum clearance from permanent structures specified in ***Standard S9.e***.



Standard W9.a and Standard S9.a

S9.b Tracks and track slabs shall not be located above wastewater assets that run parallel to the tracks. Dedicated transit right-of-ways shall provide a minimum of thirteen (13) horizontal feet between the nearest OCS wire and the outside edge of the wastewater asset. For rail and transit projects that include site constraints where these clearances are not achievable, SFPUC staff will work with project proponents to determine clearances that will ensure SFPUC has continued safe access to SFPUC assets and that minimize disruptions to public transit operations.

S9.c Raised boarding platforms (with a boarding grade more than eight (8) vertical inches above the grade of the adjacent traffic lane) shall be considered permanent structures. For rail and transit projects than include site constraints where these clearances are not achievable, SFPUC staff will work with project proponents to determine clearances that will ensure SFPUC has continued safe access to SFPUC assets and that minimize disruptions to public transit operations.

S9.d Permanent structures, including but not limited to fences and raised boarding platforms shall not block maintenance vehicle access to manholes or other surface access points to the wastewater collection system.

S9.e Sewer Laterals

i. Permanent structures shall not be located above or within two (2) horizontal feet of the outside edge of sewer laterals or sewer lateral air vents.

ii. Permanent structures shall not impede the positive flow of sewage backups from the sewer lateral air vent to the gutter. (***Detail APS S2.4***)

iii. Sewer laterals shall meet requirements outlined in the ***SFPUC Sewer Lateral Standard Details and Specifications***.

OUTCOMES

Maintaining minimum clearances between buried SFPUC utilities and permanent structures allows SFPUC crews and contractors to safely operate and maintain those utilities. Specifically:

- Adequate space is provided to allow a dump truck, excavator, and trench shoring to be staged along the alignment of an underground water or sewer main.
- Utility access points such as valve boxes, meter boxes, vaults, sewer vents and manholes remain accessible for maintenance and operation of underground assets.
- Flow of sewer backups is not impacted by the presence of permanent structures, preventing localized ponding on sidewalks and limiting public exposure to raw sewage.

STANDARD 10: **UNDERGROUND UTILITY CLEARANCES**

OVERVIEW

Underground utilities installed adjacent to existing SFPUC infrastructure can make planned and emergency maintenance and upgrades to existing infrastructure difficult for SFPUC crews and contractors.

PROTECTION STANDARDS: WATER

W10.a New utilities and/or underground structures shall comply with ***CDD Specification 01 41 28 "Protection of Existing Water and AWSS Facilities,"*** and other applicable federal, state, and local codes.

W10.b New utilities and/or underground structures aligned adjacent to an existing water asset shall not be installed within three (3) horizontal feet of the outside diameter of the existing water asset, as shown in ***Detail APS WS10.1***.

W10.c New utilities and/or underground structures that cross over or under an existing water asset shall be installed as far as possible from and no closer than twelve (12) inches to the outside diameter of the water asset, as shown in ***Detail APS WS10.1***.

W10.d New utilities and/or underground structures that cross over or under an existing water asset shall cross at an angle of forty-five (45) to ninety (90) degrees, as measured between the centerline of the crossing utility and the water asset. (***Detail APS WS10.1***)

Maintaining minimum clear spaces around existing underground SFPUC assets ensures that SFPUC crews and contractors are able to excavate around those assets and install shoring for required maintenance work.

WASTEWATER

PROTECTION STANDARDS: WASTEWATER

S10.a New utilities and/or underground structures shall comply with all applicable federal, state, and local codes.

S10.b New utilities and/or underground structures aligned adjacent to an existing wastewater asset shall not be installed within three and a half (3.5) horizontal feet of the outside diameter of the existing wastewater asset, as shown in ***Detail APS WS10.1***.

S10.c New utilities and/or underground structures that cross over or under an existing wastewater asset shall be installed as far as possible from and no closer than twelve (12) inches to the outside diameter of the wastewater asset, as shown in ***Detail APS WS10.1***.

S10.d New utilities and/or underground structures that cross over or under an existing wastewater asset shall cross at an angle of forty-five (45) to ninety (90) degrees, as measured between the centerline of the crossing utility and the wastewater asset. See ***Detail APS WS10.1.***

OUTCOMES

Maintaining minimum clearance from existing SFPUC infrastructure ensures that SFPUC crews and contractors will have the ability to safely and expeditiously maintain and improve such infrastructure in the future. Specifically:

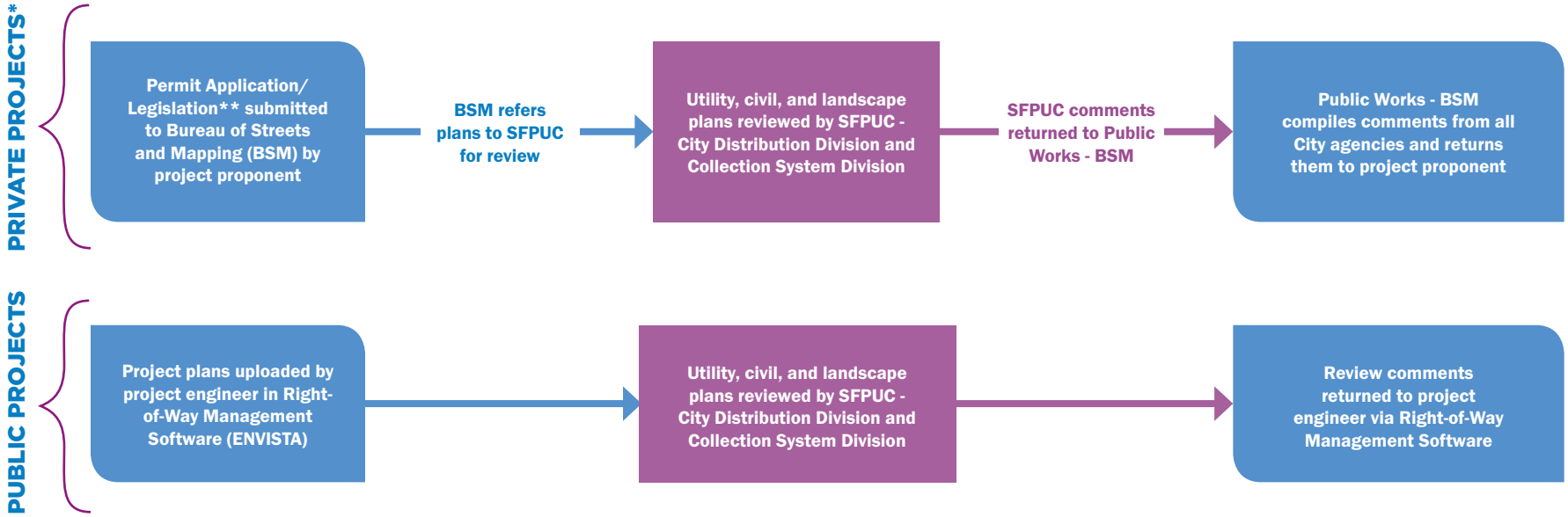
- Crews and contractors will have adequate space to tap mains for new service connections.
- Crews and contractors will have adequate space to properly shore trenches, providing a safe working environment for main maintenance and replacement projects.
- Heavy equipment operators will be able to better avoid damaging crossing utilities during excavation, therefore avoiding disruptions in utility service to the general public.
- Projects will avoid waiting periods for conflicting utility relocation during maintenance and replacement projects, therefore reducing project construction schedules.

PROJECT REVIEW

The City Distribution and Collection Systems Divisions of the SFPUC encourage project sponsors to submit project plans as early as feasible during the design process for review. Review staff from CDD and CSD will examine submittals for compliance with the Asset Protection Standards (along with other applicable regulatory requirements) and work with project sponsors to resolve potential conflicts with existing SFPUC infrastructure. Working with review staff early in the project planning & design process allows project designers to modify designs to avoid utility relocation work where possible, and allows for project managers to appropriately budget for SFPUC utility work when it cannot be avoided.

Project proponents shall submit documentation per the process prescribed for type of project being implemented. Typical examples of workflows for project review are listed below. Project proponents should ensure that they provide all the required submittals for the specific project type to ensure a thorough and timely review of documentation.

EXAMPLE PROJECT WORKFLOWS



* This flowchart is typical of private development projects. Some private projects may follow a submittal review process prescribed in that project's specific development MOU.

** Typical examples are proposed sidewalk change legislation, proposed street vacation legislation, street improvement permit application, major encroahment permit application, etc. See *http://sfdpw.org/index.aspx?page=1597*.

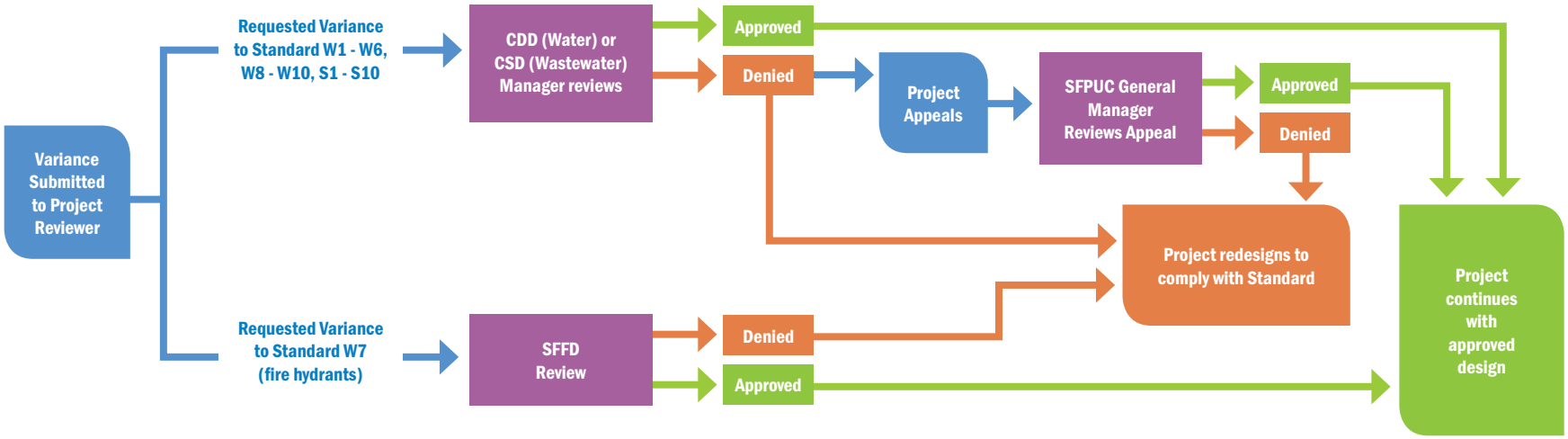
VARIANCE PROCESS

Subsurface utility congestion, safety considerations, legal/real estate requirements and other additional factors may sometimes make it difficult for projects to be in compliance with all Standards listed herein. If a project sponsor cannot comply with certain Standards due to physical site constraints or factors listed above, SFPUC will consider issuing variances to the Standards.

A flow chart for variance review is provided in the figure below. Requests for variance will be processed by the Collection Systems Division or City Distribution Division project reviewer and escalated to the appropriate division manager. Along with any supporting documentation or drawings, project proponents should submit cover letters for variance requests explaining (1) why the variance is necessary and (2) how the proposed design / design mitigation meets the intentions and outcomes of the original Standard.

The Asset Protection Standards only apply to existing right-of-ways and infrastructure. Accordingly, variances to the Asset Protection Standards will not be considered for projects installing new water or wastewater infrastructure or developing completely new streets. In these situations, projects are asked instead to request variances to the standards or regulations applicable to that specific project (i.e. Subdivision Regulations) through the appropriate process applicable to that project (i.e. Infrastructure Task Force).

VARIANCE REVIEW PROCESS



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APPENDIX A: DEFINITIONS AND REFERENCES

SFPUC Asset Protection Standards

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APPENDIX A: **DEFINITIONS**

Americans with Disabilities Act (ADA): Law that prohibits discrimination against individuals with disabilities.

Asset: Any facility owned, maintained and operated by the San Francisco Public Utilities Commission, including service laterals between the main and the customer point of connection.

AWSS Asset: Asset that is a component of the Auxiliary Water Supply System (also referred to as the High Pressure Water System [HPWS]).

CDD: City Distribution Division (San Francisco potable, recycled, and auxiliary water supply system division of the SFPUC, also referred to as the San Francisco Water Department [SFWD])

Cover: Distance between the finished grade of the right-of-way and the top of a SFPUC Asset.

Cover (Valve, Meter, or Manhole): Precast concrete or iron lid protecting and/or providing access to an SFPUC asset.

CSD: Collection System Division (San Francisco wastewater collection system operator of the SFPUC)

Public Works: San Francisco Public Works (formerly San Francisco Department of Public Works)

Drainage Management Area (DMA): An individual discrete area or subwatershed that typically follows grade breaks and roof ridge lines. A DMA drains to its own green stormwater infrastructure facility.

Edge Treatments: Edge treatments are rigid perimeters (typically formed of concrete) that prevent pavement from shifting horizontally and helps to minimize differential settlement between traditional pavement and permeable pavement (also referred to as flush vertical curbs).

H-20: Traffic Load Design Rating defined by the American Association of Highway Transportation Officials (AASHTO).

Lateral: Water or sewer pipe extending from a main to a property served by the San Francisco Public Utilities Commission.

Lower Sewer Lateral: The portion of the sewer lateral from the curb to the sewer main.

Main: A principal water or sewer conveyance pipe in the distribution/ collection systems, typically aligned parallel to the center of the street.

Manhole: A covered, at-grade access point to subsurface utility infrastructure.

Meter Box / Vault: An at-grade water utility box or vault containing a water meter.

MTA: San Francisco Municipal Transportation Agency

Operable Asset: Asset that must be accessible by SFPUC staff to control and monitor the operation of the potable/recycled/auxiliary water distribution system or wastewater collection system.

Overhead Contact System (OCS): Overhead electric infrastructure operated by the San Francisco Municipal Transportation Agency that powers transit vehicles.

Permanent Structure: Any structure or furnishing that is not readily moveable without the need of a special tradesman (e.g. raised boarding platforms, buildings and large site furnishings including but not limited to pergolas, street lights, other poles, shade structures, etc).

Potable Water Asset: Any asset that is a component of the Potable Water Supply System (also referred to as [PWSS], Domestic Water Supply System [DWSS], and Low Pressure Water System [LPWS]).

Raised Boarding Platform: Boarding platform for transit operations that has a boarding grade greater than eight (8) vertical inches above the grade of the adjacent transit/traffic lane.

APPENDIX A: **DEFINITIONS**

Recycled Water Asset: Any asset that is a component of the Recycled Water Supply System (also referred to as RWSS).

Sidewalk Extension: A widening of an existing sidewalk (may be referred to as a bulb-out, bus-bulb-out, sidewalk widening, etc.).

Temporary Structure: Any structure or furnishing that is not classified as a permanent structure.

Upper Sewer Lateral: The portion of the lateral from the property to the curb.

APPENDIX A: **REFERENCES**

Better Streets Plan and Complete Streets Policy: San Francisco's policies encourage the design and development of 'Better Streets' – streets that work for all users. A Better Street attends to the needs of people first, considering pedestrians, bicyclists, transit, street trees, stormwater management, utilities, and livability as well as vehicular circulation and parking.

Published by San Francisco Planning Department
www.sfbetterstreets.org

Public Works Accessible Street Crossing Standards: San Francisco Standard Specifications & Plans for the installation of curb ramps at street crossings.

Published by San Francisco Public Works
sfpublicworks.org/services/standards-specifications-and-plans

Public Works Standard Specifications and Plans: General Standard Plans & Specifications for the construction of public streets.

Published by San Francisco Public Works
sfpublicworks.org/services/standards-specifications-and-plans

SFPUC City Distribution Division Standard Specifications and Plans: SFPUC Water Enterprise – City Distribution Division Plans and Specifications for the installation of new potable, recycled and AWSS water infrastructure.

Published by the San Francisco Public Utilities Commission
sfwater.org/reqs

SFPUC Sewer Lateral Standard Plans and Specifications: SFPUC Wastewater Enterprise – Collection Systems Division Plans and Specifications for new wastewater service lateral installation.

To be published Fall 2017 by the San Francisco Public Utilities Commission
sfwater.org/reqs

SFPUC Green Infrastructure Typical Details, Phase II: Typical Details for the design & construction of green infrastructure elements within the public right-of-way.

Published by the San Francisco Public Utilities Commission
sfwater.org/sdg

APPENDIX B: STANDARD DETAIL DRAWINGS

SFPUC Asset Protection Standards

APS WS 2.1 Minimum Clearance between New Curb & Gutter and Existing SFPUC Covers

APS W 2.2 Sidewalk Encroachment on Existing Potable/Recycled Water Assets

APS W 2.3 Sidewalk Encroachment on Existing Aux Water Supply System Assets

APS S 2.4 Sewer Lateral Air Vent & Trap Relocation at Sidewalk Extensions & Bulb Outs

APS WS 3.1 Minimum Cover Over Existing SFPUC Assets

APS W 7.1 Requirements for Existing Low Pressure Fire Hydrants at New Bulb Outs

APS W 7.2 Requirements for Existing AWSS Fire Hydrants at New Bulb Outs

APS W 8.1 Minimum Clearance from Temporary Structures to Existing Water Assets

APS S 8.2 Minimum Clearance from Temporary Structures to Existing Wastewater Assets

APS WS 9.1 Minimum Clearance from Permanent Structures to Existing SFPUC Assets (Plan)

APS WS 9.2 Minimum Clearance from Permanent Structures to Existing SFPUC Assets (Profile)

APS WS 10.1 Minimum Clearance from Underground Utilities to Existing SFPUC Assets

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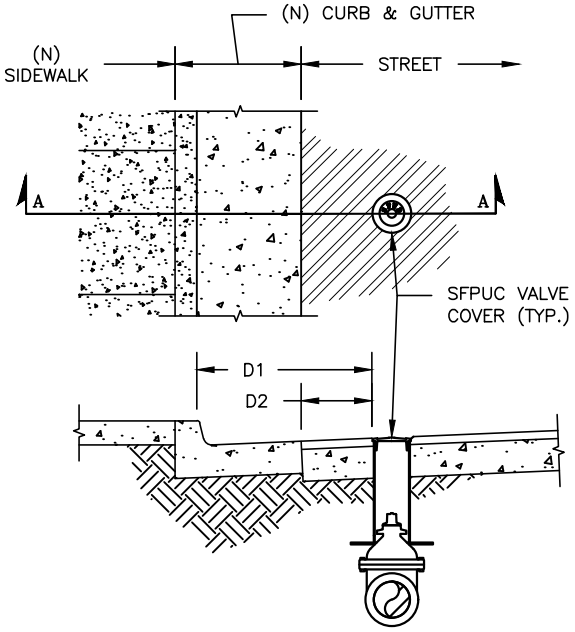
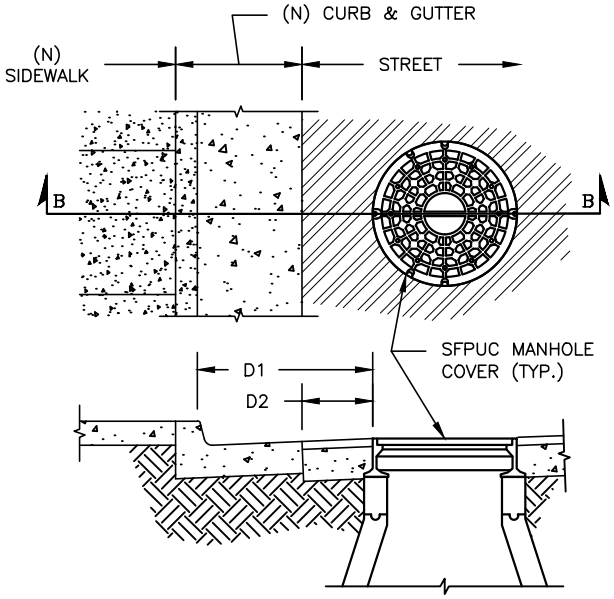


A CLEARANCE FROM SFPUC VALVE COVER



B CLEARANCE FROM SFPUC MANHOLE COVER

REFER TO SFPUC STANDARD APS W2.B AND APS S2.A FOR FULL TEXT OF REQUIREMENTS

MINIMUM CLEARANCES FROM NEW CURB AND GUTTER*

D1	18 INCHES	CURB FACE TO EDGE OF VALVE BOX / MANHOLE COVER FRAME**
D2	6 INCHES	LIP OF GUTTER TO EDGE OF VALVE BOX / MANHOLE COVER FRAME**

* MINIMUM DIMENSIONS ONLY APPLY TO LOCATIONS WHERE SIDEWALK IS BEING EXTENDED / CURB ALIGNMENT IS BEING ADJUSTED. FOR STANDARD INSTALLATION LOCATION OF NEW WATER AND WASTEWATER INFRASTRUCTURE, REFER TO APPROPRIATE INSTALLATION SPECIFICATIONS OR SUBDIVISION REGULATIONS.

** FOR STANDARD APS W2.B AND APS S2.A, MEASUREMENTS D1 AND D2 ARE TAKEN AT STREET GRADE TO THE EDGE OF THE VALVE BOX / MANHOLE COVER FRAME WHEN A FRAME IS PRESENT. WHEN NO FRAME PRESENT, THE MEASUREMENT IS TAKEN TO THE EDGE OF THE COVER.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	MINIMUM CLEARANCE BETWEEN NEW CURB & GUTTER AND EXISTING SFPUC COVERS
SCALE N.T.S			DWG # APS WS2.1

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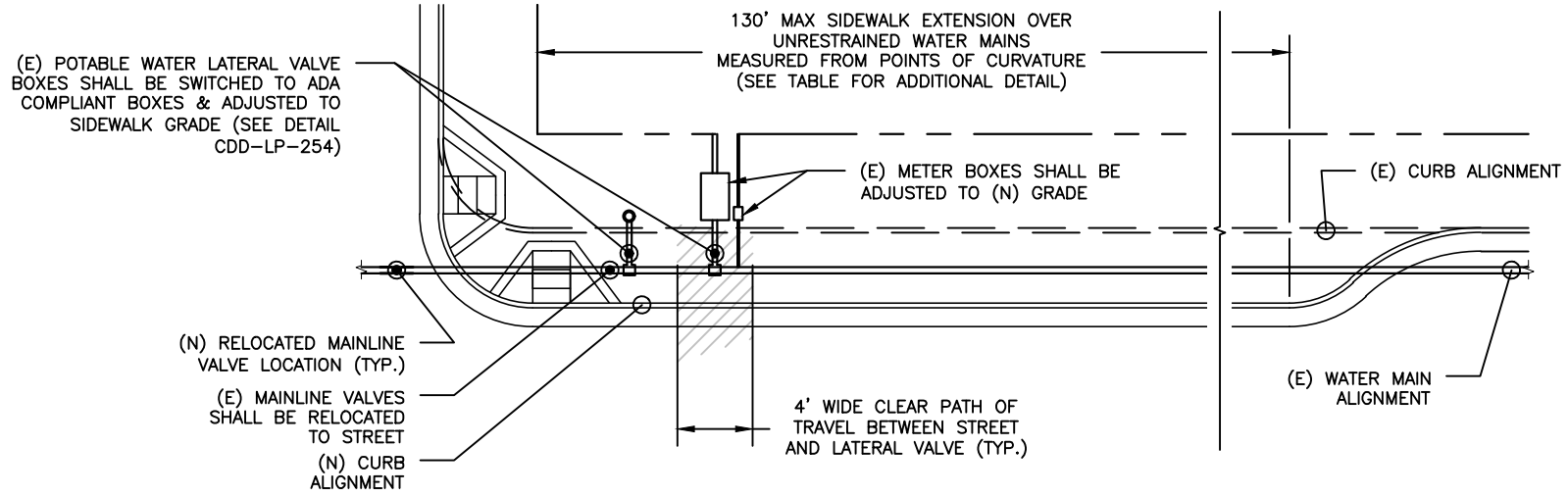

DESCRIPTION OF SFPUC WATER ASSET IN SIDEWALK	REQUIRED ACTION BASED ON LENGTH OF SIDEWALK EXTENSION / BULB OUT	
	<= 130 FEET	> 130 FEET
POTABLE/RECYCLED WATER CAST IRON MAIN (UNRESTRAINED)	A.	B.
POTABLE/RECYCLED WATER DUCTILE IRON MAIN INSTALLED BEFORE JAN 1, 1985 (UNRESTRAINED)	A.	B.
POTABLE/RECYCLED WATER DUCTILE IRON MAIN INSTALLED ON OR AFTER JAN 1, 1985 (RESTRAINED)	A.	D.
POTABLE/RECYLCED WATER MAIN – OTHER PIPE MATERIAL	A.	D.
POTABLE/RECYCLED WATER MAIN ISOLATION VALVE	B.	B.
POTABLE/RECYCLED WATER LATERAL ISOLATION VALVE	C.	C.
POTABLE/RECYCLED WATER FIRE HYDRANT	REFER TO STANDARD APS W7	

KEY:

A. PROJECT REQUIRED TO NOTIFY SFPUC OF PLANNED WORK VIA NOTICE OF INTENT PROCESS. SFPUC–CDD MAY ELECT TO REPLACE ASSETS PRIOR TO CONSTRUCTION OF SIDEWALK EXTENSION.

B. PROJECT REQUIRED TO RELOCATE OR RENEW PIPE/VALVE IN COORDINATION WITH SFPUC–CDD.

C. PROJECT REQUIRED TO REPLACE CAST IRON VALVE COVERS WITH ADA–COMPLIANT COVERS PER STANDARD DETAIL CDD–LP–254.

D. SFPUC–CDD WILL REVIEW CONDITION OF EXISTING WATER ASSET IN CONJUNCTION WITH DESIGN PLANS TO DETERMINE IF THE PIPE NEEDS TO BE RELOCATED (ON A CASE–BY–CASE BASIS).

NOTES:

1. SIDEWALK EXTENSION IS CONSIDERED TO BE OVER A WATER MAIN IF THE FACE OF THE CURB OR LIP OF THE GUTTER CROSSES OVER THE OUTSIDE DIAMETER OF THE MAIN.
2. REFER TO STANDARD APS W2.C FOR FULL TEXT OF REQUIREMENTS.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017
SCALE N.T.S
REV. 0

SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS

SIDEWALK ENCROACHMENT ON EXISTING POTABLE/RECYCLED WATER ASSETS

DWG # APS W2.2

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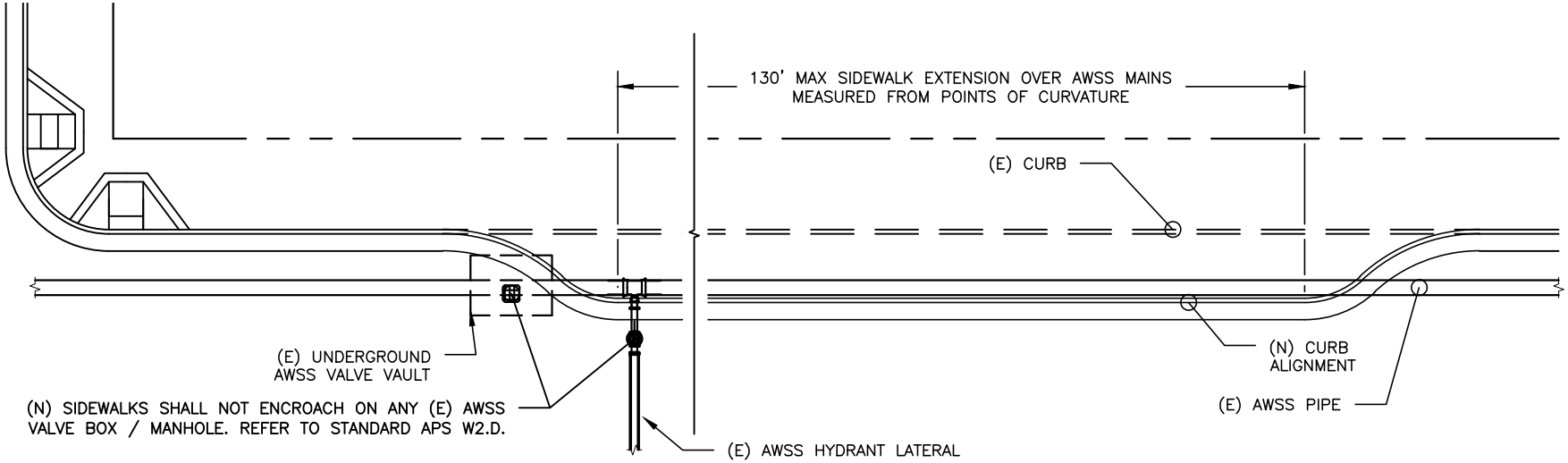


SFPUC WATER ASSET IN SIDEWALK	ACTION BASED ON LENGTH OF SIDEWALK EXTENSION	
	<= 130 FEET	> 130 FEET
AWSS MAIN – ANY PIPE MATERIAL	A.	B.
AWSS MAIN ISOLATION VALVE	B.	B.
AWSS LATERAL ISOLATION VALVE	B.	B.
AWSS FIRE HYDRANT	REFER TO STANDARD APS W7	

KEY:

A. PROJECT REQUIRED TO NOTIFY SFPUC OF PLANNED WORK VIA NOTICE OF INTENT PROCESS. SFPUC–CDD MAY ELECT TO REPLACE ASSETS PRIOR TO CONSTRUCTION OF SIDEWALK EXTENSION.

B. PROJECT REQUIRED TO RELOCATE OR RENEW PIPE/VALVE IN COORDINATION WITH SFPUC–CDD.

NOTES:

1. SIDEWALK EXTENSION IS CONSIDERED TO BE OVER AN AWSS MAIN IF THE FACE OF THE CURB OR LIP OF THE GUTTER CROSSES OVER THE OUTSIDE DIAMETER OF THE MAIN.
2. REFER TO STANDARD APS W2.D FOR FULL TEXT OF REQUIREMENTS.

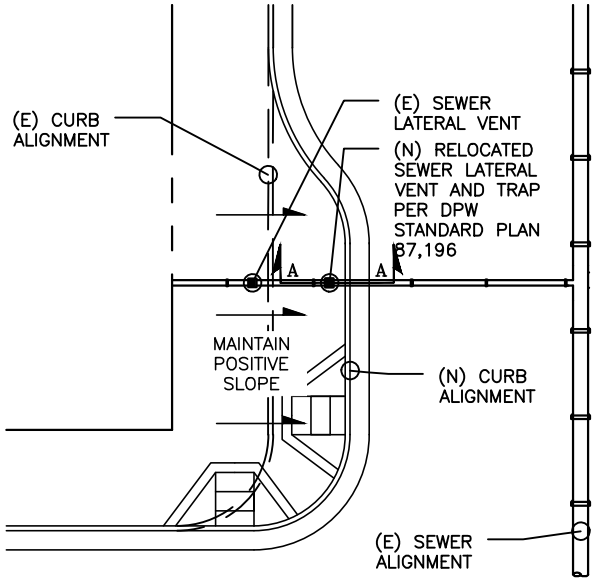
San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE	05/01/2017	REV.	0
SCALE	N.T.S		

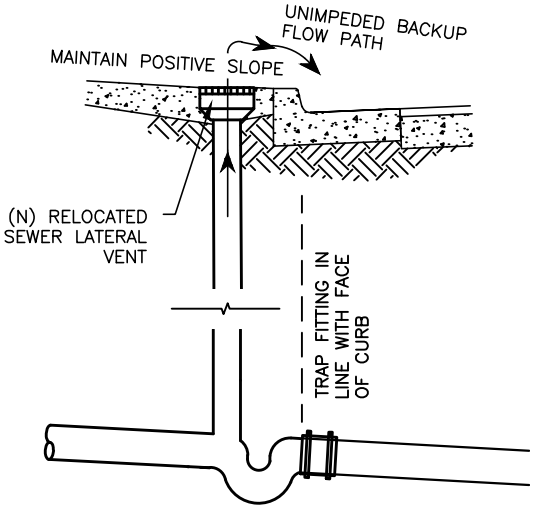
SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS

SIDEWALK ENCROACHMENT ON EXISTING AUX WATER SUPPLY SYSTEM ASSETS

DWG # APS W2.3



– PLAN VIEW
– N.T.S.



A SEWER LATERAL VENT PROFILE VIEW
– N.T.S.

NOTE:

REFER TO SFPUC STANDARD APS S2.D FOR FULL TEXT OF REQUIREMENTS

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	SEWER LATERAL AIR VENT & TRAP RELOCATION AT SIDEWALK EXTENSIONS & BULB OUTS
SCALE N.T.S			DWG # APS S2.4

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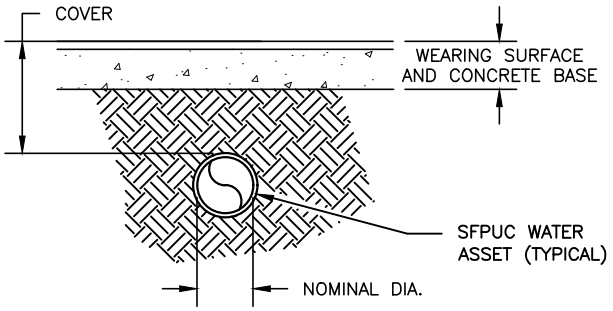


MINIMUM COVER FOR DUCTILE IRON, CAST IRON, PLASTIC AND COPPER PIPE

NOMINAL DIAMETER	MINIMUM COVER
0 TO 2 INCHES	22 INCHES
4 TO 10 INCHES	28 INCHES
12 INCHES	32 INCHES
14 TO 16 INCHES	38 INCHES
18 TO 20 INCHES	34 INCHES
> 20 INCHES	31 INCHES

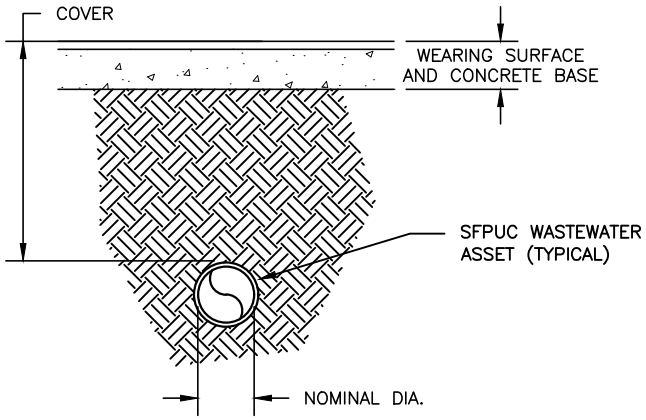
MINIMUM COVER FOR ALL STEEL PIPE SHALL BE 48–INCHES (4 FEET)

MAXIMUM COVER REQUIREMENTS FOR ALL MATERIAL:

IF A PROJECT RESULTS IN A GRADE CHANGE OF MORE THAN 12 INCHES AND CAUSES THE INVERT OF A WATER PIPE TO BE MORE THAN 60 INCHES BELOW FINAL FINISHED GRADE, THE PROJECT SHALL BE RESPONSIBLE FOR REPLACING THE AFFECTED PIPELINE AT STANDARD DEPTH. SEE PLAN CDD–LP–002.

A WATER PIPE MINIMUM COVER

– N.T.S.



MINIMUM COVER FOR WASTEWATER PIPE (ALL MATERIALS)

NOMINAL DIAMETER	MINIMUM COVER
ANY	72 INCHES

B WASTEWATER PIPE MINIMUM COVER

– N.T.S.

NOTE:

REFER TO SFPUC STANDARD APS W3.A AND S3.A FOR FULL TEXT OF REQUIREMENTS

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	MINIMUM COVER OVER EXISTING SFPUC ASSETS
SCALE N.T.S			DWG # APS WS3.1

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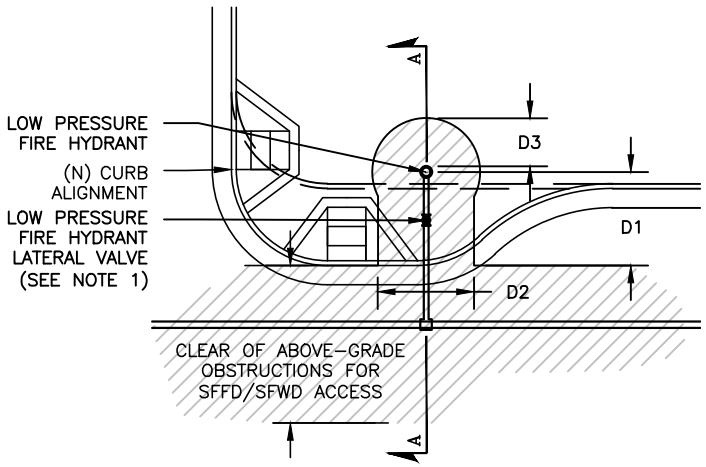
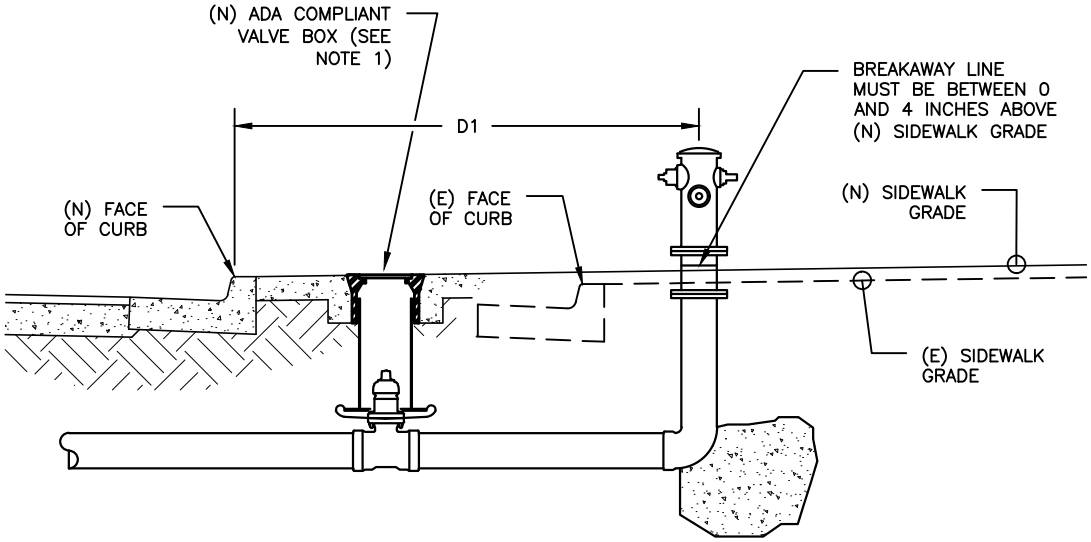


– LPFH PLAN VIEW AT BULB OUT
– N.T.S.



A LOW PRESSURE HYDRANT LATERAL PROFILE AT BULB OUT
– N.T.S.

NOTES:

1. LOW PRESSURE HYDRANT LATERAL VALVES PERMITTED IN SIDEWALK ONLY AS PRESCRIBED IN STANDARD APS W2.C. REFER TO STANDARD DETAIL CDD–LP–254 FOR ADJUSTMENT TO STREET OR SIDEWALK GRADE.
2. WIDTH FROM THE CENTER OF THE HYDRANT TO THE FIRST ROADWAY TRAVEL LANE IS DEFINED AS THE WIDTH OF THE WIDENED SIDEWALK PLUS THE WIDTH OF ANY PARKING LANE OR OTHER OBSTRUCTION TO A FIRE ENGINE (IF PRESENT).

DIM	DESCRIPTION	MINIMUM DIMENSION*	MAXIMUM DIMENSION*
D1	DISTANCE FROM CENTER OF HYDRANT TO FIRST ROADWAY TRAVEL LANE (SEE NOTE 2)	24 INCHES	9 FEET
D2	WIDTH OF CLEAR PATH BETWEEN FIRE ENGINE AND HYDRANT	10 FEET	N/A
D3	ABOVE GRADE CLEARANCE AROUND OUTSIDE CIRCUMFERENCE OF HYDRANT BARREL	5 FEET	N/A

***ATTENTION:**

DIMENSIONS SHOWN HEREIN ONLY APPLY TO EXISTING HYDRANTS THAT FALL WITHIN THE FOOTPRINT OF NEW PEDESTRIAN AND BUS BULB OUTS BEING ADDED TO EXISTING SIDEWALKS.

REFER TO DRAWING CDD–LP–004 FOR NEW LOW PRESSURE HYDRANT INSTALLATION AND AWSS STANDARD DRAWING 4 FOR NEW AWSS HYDRANT INSTALLATION REQUIREMENTS.

IN LOCATIONS WHERE AN ENTIRE BLOCK FACE IS BEING WIDENED, ALL HYDRANTS SHALL BE RELOCATED PER DRAWING CDD–LP–004 AND AWSS STANDARD DRAWING 4.

VARIANCES TO DIMENSIONS SPECIFIED HEREIN MUST BE APPROVED IN WRITING BY THE ASSISTANT DEPUTY CHIEF OF THE SAN FRANCISCO FIRE DEPARTMENT'S DIVISION OF SUPPORT SERVICES.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

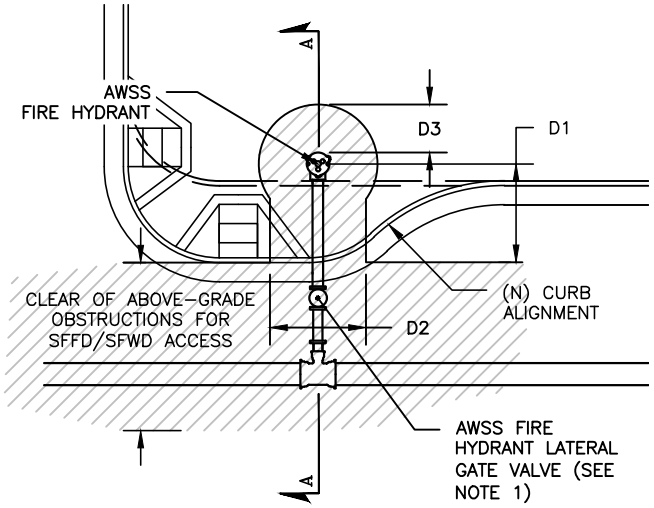
DATE 05/01/2017
SCALE N.T.S
REV. 1

SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS

REQUIREMENTS FOR EXISTING LOW PRESSURE FIRE HYDRANTS AT NEW BULB OUTS

DWG # APS W7.1

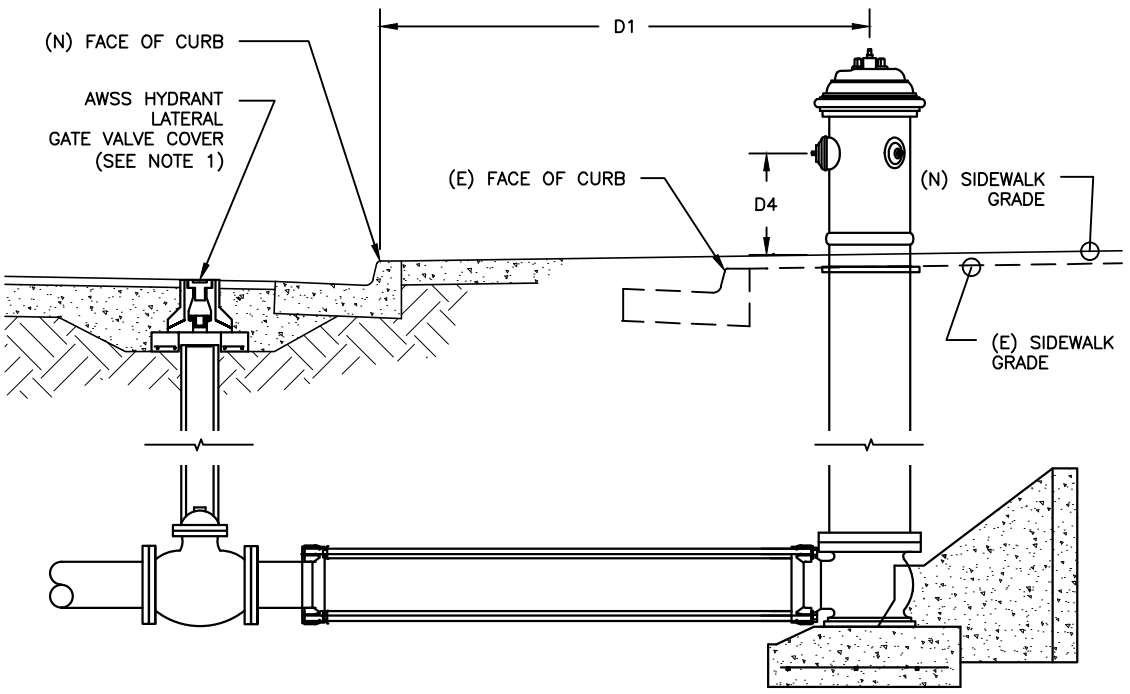
S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)



– AWSS HYDRANT PLAN VIEW AT BULB OUT
– N.T.S.

NOTES:

1. AWSS HYDRANT LATERAL VALVES ARE NOT PERMITTED IN THE SIDEWALK.
2. WIDTH FROM THE CENTER OF THE HYDRANT TO THE FIRST ROADWAY TRAVEL LANE IS DEFINED AS THE WIDTH OF THE WIDENED SIDEWALK PLUS THE WIDTH OF ANY PARKING LANE OR OTHER OBSTRUCTION TO A FIRE ENGINE (IF PRESENT).



A AWSS HYDRANT LATERAL PROFILE AT BULB OUT
– N.T.S.

***ATTENTION:**

DIMENSIONS SHOWN HEREIN ONLY APPLY TO EXISTING HYDRANTS THAT FALL WITHIN THE FOOTPRINT OF NEW PEDESTRIAN AND BUS BULB OUTS BEING ADDED TO EXISTING SIDEWALKS.

REFER TO DRAWING CDD-LP-004 FOR NEW LOW PRESSURE HYDRANT INSTALLATION AND AWSS STANDARD DRAWING 4 FOR NEW AWSS HYDRANT INSTALLATION REQUIREMENTS.

IN LOCATIONS WHERE AN ENTIRE BLOCK FACE IS BEING WIDENED, ALL HYDRANTS SHALL BE RELOCATED PER DRAWING CDD-LP-004 AND AWSS STANDARD DRAWING 4.

VARIANCES TO DIMENSIONS SPECIFIED HEREIN MUST BE APPROVED IN WRITING BY THE ASSISTANT DEPUTY CHIEF OF THE SAN FRANCISCO FIRE DEPARTMENT'S DIVISION OF SUPPORT SERVICES.

DIM	DESCRIPTION	MINIMUM DIMENSION*	MAXIMUM DIMENSION*
D1	DISTANCE FROM CENTER OF HYDRANT TO FIRST ROADWAY TRAVEL LANE (SEE NOTE 2)	24 INCHES	9 FEET
D2	WIDTH OF CLEAR PATH BETWEEN FIRE ENGINE AND HYDRANT	10 FEET	N/A
D3	ABOVE GRADE CLEARANCE AROUND OUTSIDE CIRCUMFERENCE OF HYDRANT BARREL	5 FEET	N/A
D4	OFFSET FROM CENTER OF OUTLET FACING CURB TO FINISHED SIDEWALK GRADE	19 ¼ INCHES	20 ¾ INCHES

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE	05/01/2017	REV. 1	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS
SCALE	N.T.S		

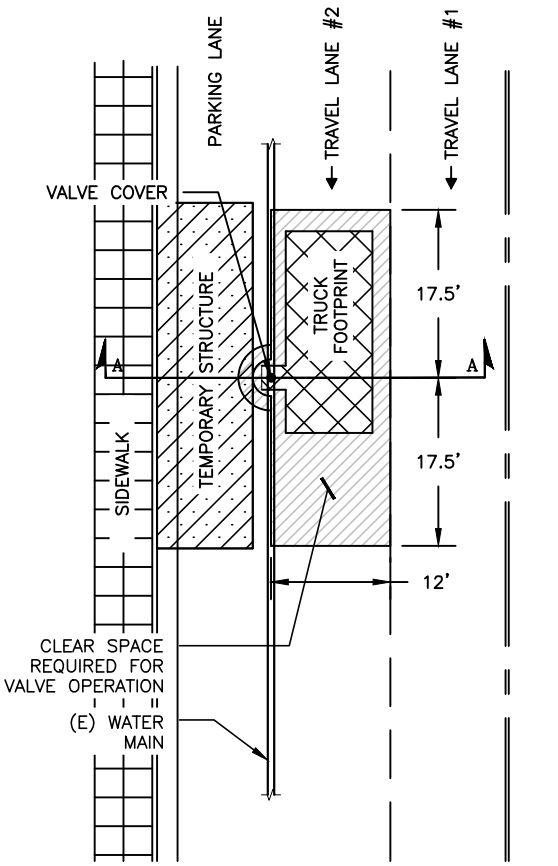
REQUIREMENTS FOR EXISTING AWSS HYDRANTS AT NEW BULB OUTS

DWG # APS W7.2

S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)

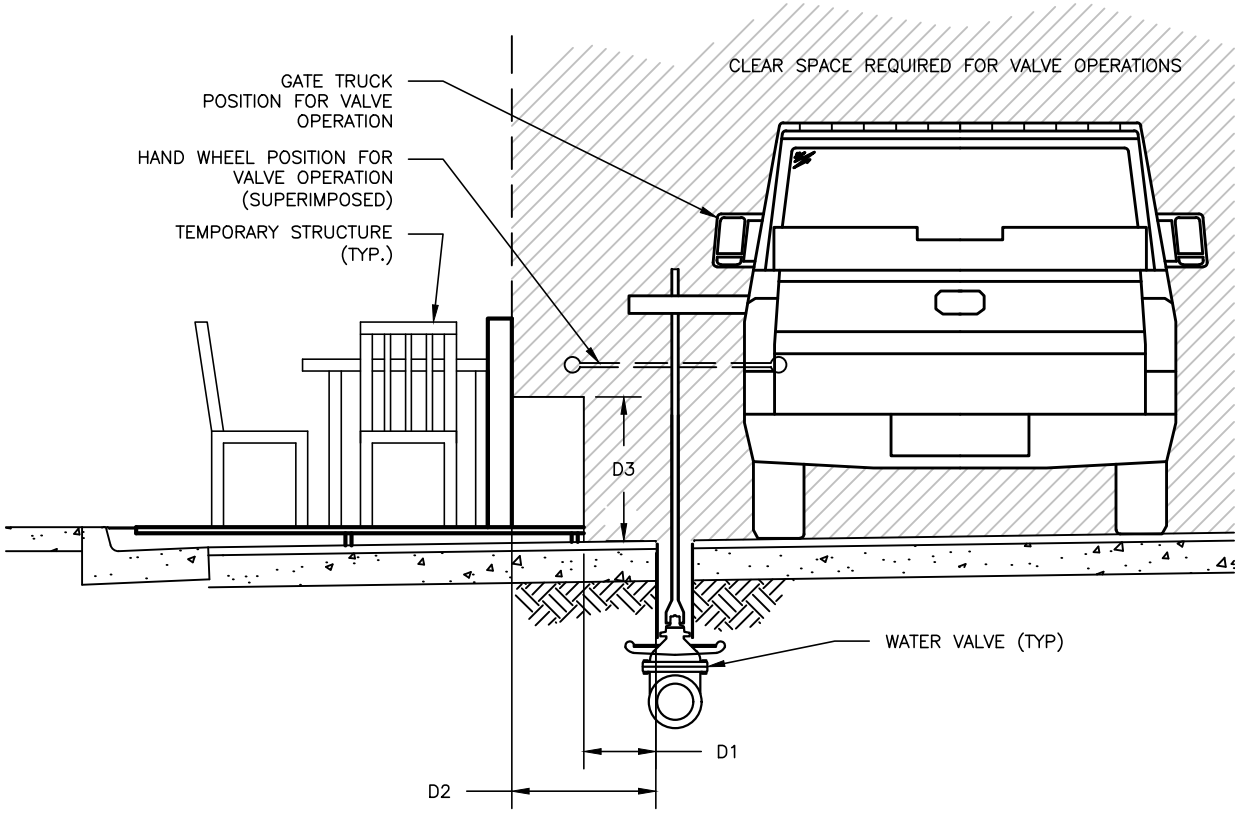
NOTE:

REFER TO SFPUC STANDARD APS W8.B FOR FULL TEXT OF REQUIREMENTS



– PLAN VIEW
– N.T.S.

DIM	DESCRIPTION	CLEARANCE
D1	RADIAL CLEARANCE FROM EDGE OF VALVE COVER TO TEMPORARY STRUCTURE AT STREET GRADE	18 INCHES
D2	RADIAL CLEARANCE FROM EDGE OF VALVE COVER TO TEMPORARY STRUCTURE AT A PLANE 36 INCHES ABOVE STREET GRADE	36 INCHES
D3	MINIMUM VERTICAL CLEARANCE FOR HAND WHEEL OPERATION	36 INCHES



A PROFILE VIEW
– N.T.S.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

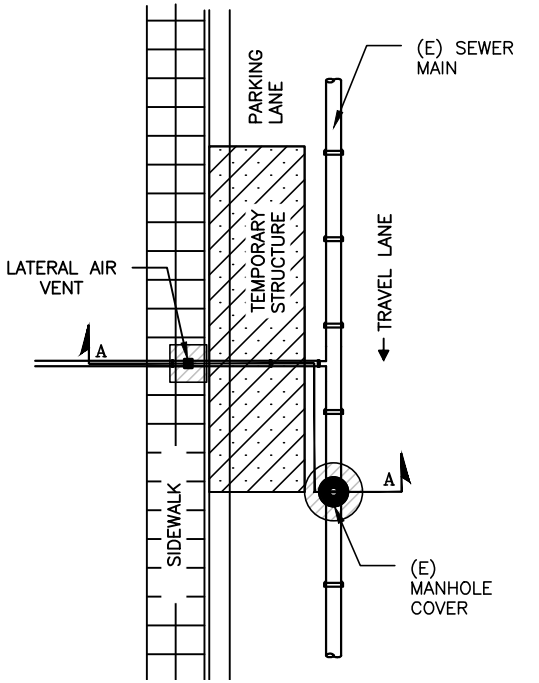
DATE	05/01/2017	REV.	0
SCALE	N.T.S		

SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS

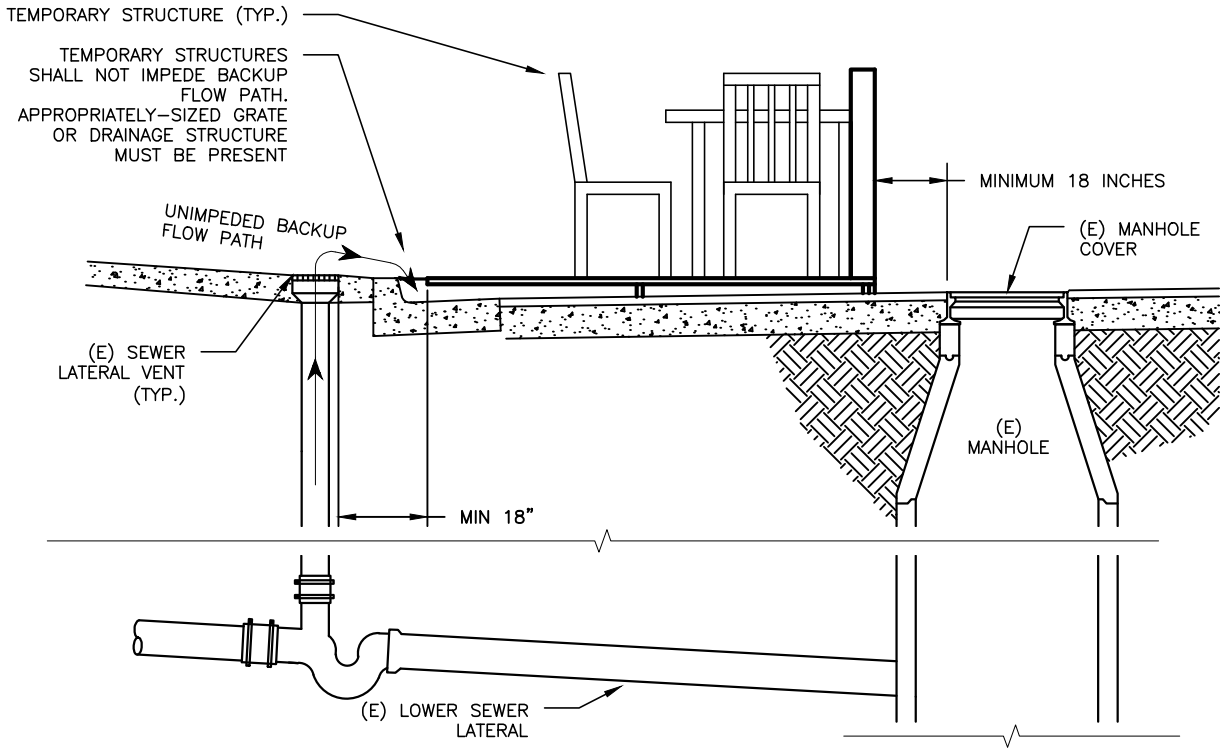
MINIMUM CLEARANCE FROM TEMPORARY STRUCTURES TO EXISTING WATER ASSETS

DWG # APS W8.1

S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)



– PLAN VIEW
– N.T.S.



A PROFILE VIEW
– N.T.S.

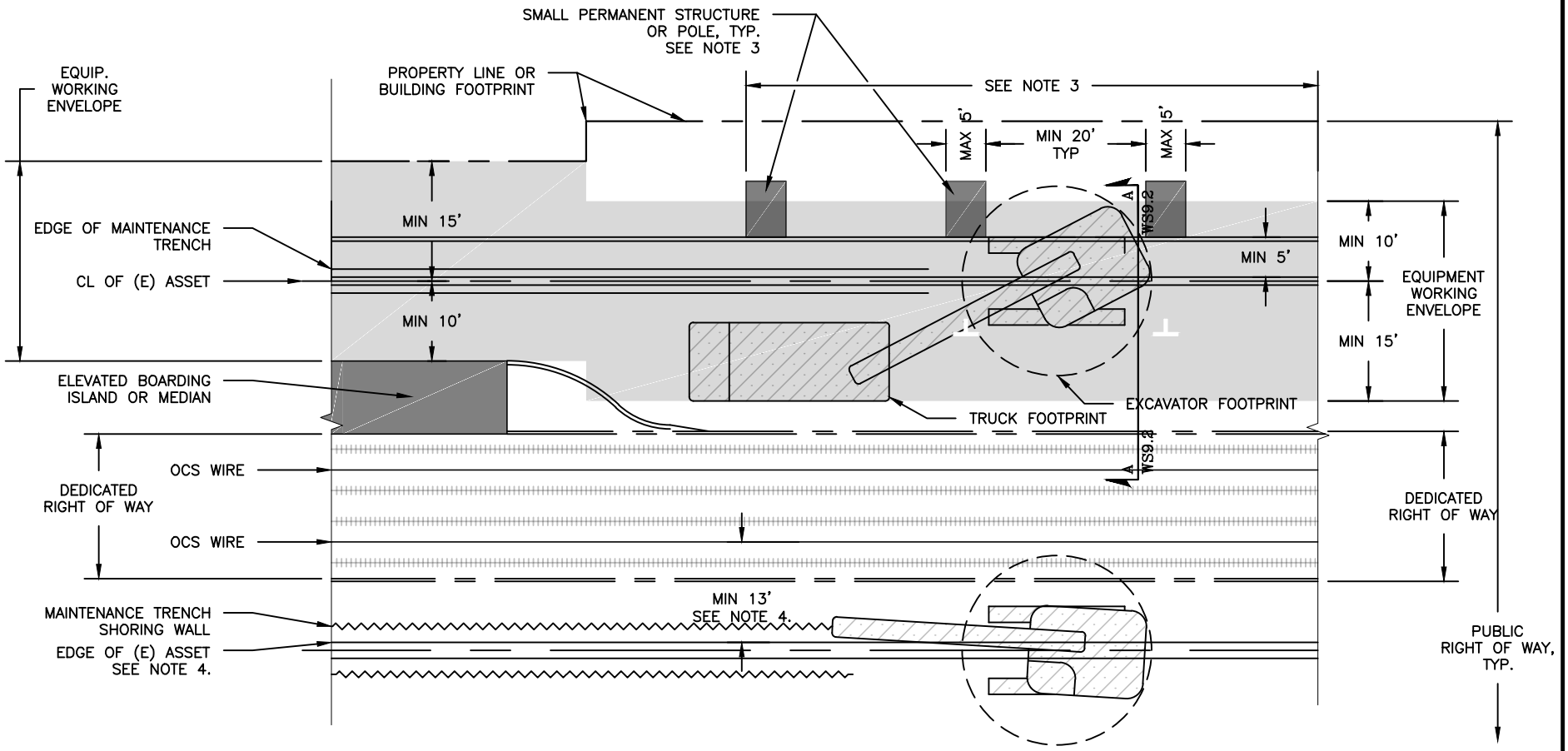
NOTE:

REFER TO SFPUC STANDARD APS S8 FOR FULL TEXT OF REQUIREMENTS

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	MINIMUM CLEARANCE FROM TEMPORARY STRUCTURES TO EXISTING WASTEWATER ASSETS
SCALE N.T.S			DWG # APS S8.2

S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)



NOTES:

1. REFER TO SFPUC STANDARD APS W9 AND S9 FOR FULL TEXT OF REQUIREMENTS.

2 SFPUC MAY REQUIRE ADDITIONAL CLEARANCE FOR LARGE DIAMETER ASSETS THAT REQUIRE MORE EXTENSIVE SHORING.

3. PER APS W9.A.II AND APS S9.A.II, PERMANENT STRUCTURES WITH A DIMENSION OF FIVE (5) FEET OR SMALLER AS MEASURED PARALLEL TO AN SFPUC ASSET ARE PERMITTED WITHIN THE EQUIPMENT STAGING AREA, BUT SHALL NOT BE LOCATED WITHIN FIVE (5) HORIZONTAL FEET OF THE OUTSIDE EDGE OF THE SFPUC ASSET OR TWENTY (20) HORIZONTAL FEET OF ANY ADJACENT PERMANENT STRUCTURE.

4. OCS LINES SERVICING DEDICATED RIGHT OF WAYS SHALL BE LOCATED A MINIMUM OF THIRTEEN (13) HORIZONTAL FEET FROM THE OUTSIDE EDGE OF THE ASSET (W9.B AND S9.B)

San Francisco Water Power Sewer
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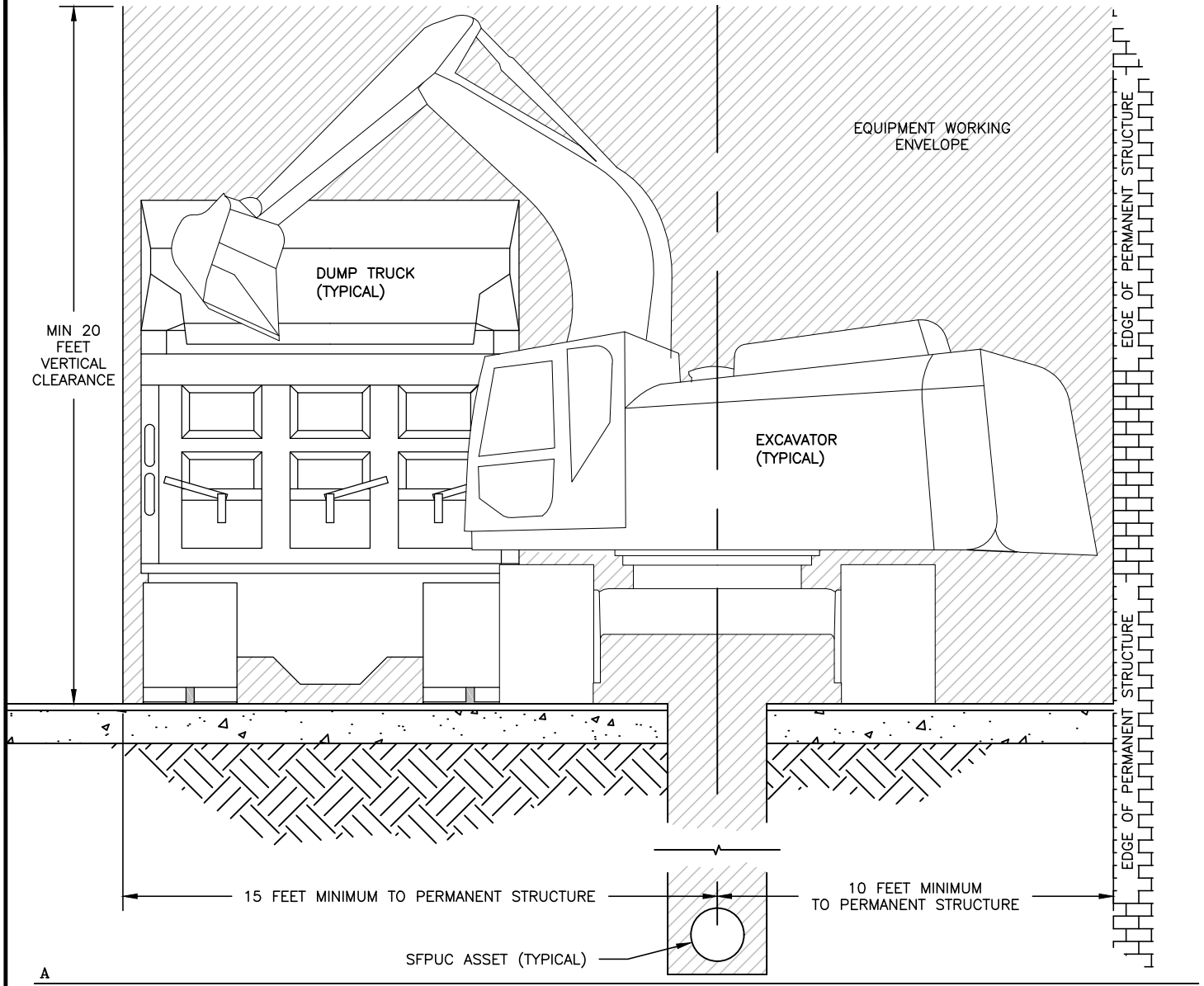
DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	MINIMUM CLEARANCE FROM PERMANENT STRUCTURES TO EXISTING SFPUC ASSETS (PLAN)
SCALE N.T.S			DWG # APS WS9.1

S:\SFPUC APS\15_APS VERSION 19\OLD\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)



A
APS WS 9.1

NOTE:

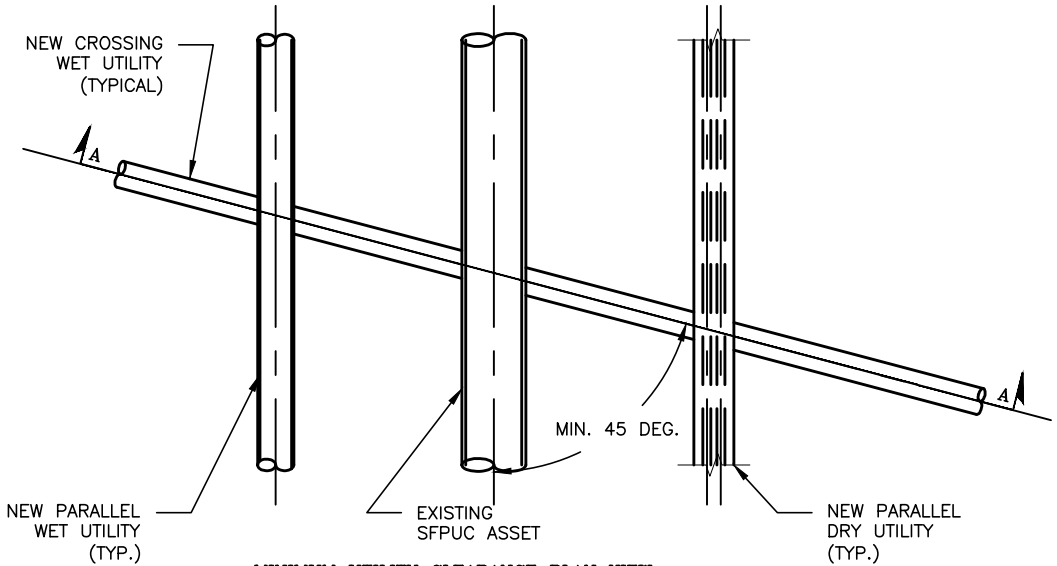
REFER TO SFPUC STANDARD APS W9.A AND S9.A FOR FULL TEXT OF REQUIREMENTS

SFPUC MAY REQUIRE ADDITIONAL CLEARANCE FOR LARGE DIAMETER ASSETS

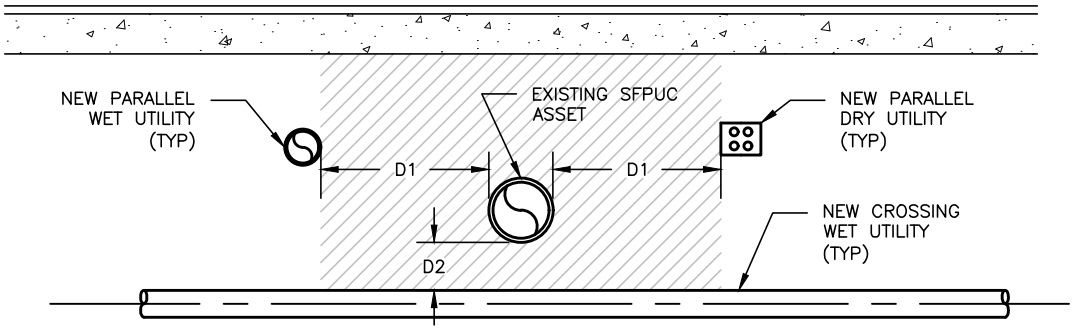
San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017	REV. 0	SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS	MINIMUM CLEARANCE FROM PERMANENT STRUCTURES TO EXISTING SFPUC ASSETS (PROFILE)
SCALE N.T.S			DWG # APS WS9.2

S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)



– MINIMUM UTILITY CLEARANCE PLAN VIEW
– N.T.S.



A MINIMUM UTILITY CLEARANCE PROFILE VIEW
– N.T.S.

DIM	DESCRIPTION	MINIMUM CLEARANCE
D1	MINIMUM OFFSET CLEARANCE BETWEEN OUTSIDE DIAMETER OF EXISTING SFPUC ASSET AND NEW PARALLEL UNDERGROUND UTILITY	WATER: 3 FEET
		WASTEWATER: 3.5 FEET
D2	MINIMUM CLEARANCE BETWEEN OUTSIDE DIAMETER OF EXISTING SFPUC ASSET AND NEW CROSSING UNDERGROUND UTILITY (CROSSING MAY BE ABOVE OR BELOW EXISTING SFPUC ASSET)	12 INCHES

NOTES:

THE MINIMUM ANGLE BETWEEN THE CENTERLINE OF AN EXISTING SFPUC ASSET AND CROSSING UNDERGROUND UTILITY SHALL BE 45 DEGREES.

REFER TO SFPUC STANDARD APS W10 AND S10 FOR FULL TEXT OF REQUIREMENTS.

NEW UTILITY INSTALLATIONS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE FEDERAL, STATE, AND LOCAL CODES, WHICH MAY BE MORE RESTRICTIVE THAN THE REQUIREMENTS SHOWN HEREIN.

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

DATE 05/01/2017
SCALE N.T.S
REV. 0

SFPUC STANDARDS FOR THE PROTECTION OF WATER AND WASTEWATER ASSETS

MINIMUM CLEARANCE FROM UNDERGROUND UTILITIES TO EXISTING SFPUC ASSETS

DWG # APS WS10.1

S:\SFPUC APS\15_APS VERSION 19\DRAWING FILES\ASSET PROTECTION DETAILS\ASSET PROTECTION DETAILS R3.DWG
ANSI FULL BLEED A (11.00 X 8.50 INCHES)

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San Francisco
Water Power Sewer

Services of the San Francisco Public Utilities Commission

Exhibit E
SFPUC CCTV Specifications and Submittal Guidelines

[attached]

CCTV Requirements for Sewer/Storm Conveyance Assets to be Accepted by the City
Dated December 2022

CCTV inspections are required for new, rehabilitated, or otherwise modified sewer conveyance assets due to redevelopment, in-fill development or other construction by outside entities. All CCTV inspections must comply with the following requirements for their review and use by the SFPUC for quality assurance purposes related to the construction work.

All video surveys of sewer assets, including, but not limited to gravity sewer pipe, storm drain pipes, force mains, laterals, manholes, boxes, tunnels, etc., must comply with and be produced in accordance with version 6 (or greater) of NASSCO standards. This includes NASSCO PACP, LACP, and MACP.

All assets shall be thoroughly cleaned prior to inspection and generation of the condition assessment video inspection as the intention is to assess the structural condition of the assets and we will need an unobstructed view.

All video surveys shall be NASSCO compliant and shall be submitted in **NASSCO Exchange Database Standard format with referenced media files and a cover letter stating the expected contents including asset IDs and a marked-up drawing/map of assets included in the submittal**. Files in NASSCO standard format can then be imported into any brand of software, including PIPELOGIX, WinCan, etc.

Only one asset shall be inspected per video survey.

All video inspections must have the SFPUC asset numbers correctly identified as specified below. Asset numbers will be provided by our GIS data stewards, which is currently Public Works Hydraulics Section but will transition to PUC Wastewater Enterprise at some point in the future. In order to provide asset ID's, these assets will need to first be reflected in our GIS. **Please be sure that the latest plan sets, reflecting any IB's or field modifications that change quantity or locations of the assets, are provided to the GIS data stewards well in advance of request for asset numbers to be used during CCTV inspection**. Additionally, in these correspondences, please identify which sewer assets have already been constructed and you intend to inspect. Asset ID's can be provided in the form of GIS shapefiles or labeled PDF maps.

Final CCTV inspections should only be performed after the assets are completely backfilled, trenches compacted and paved. Post construction video inspection will be reviewed by the City Representative to validate contractor workmanship of the newly constructed sewer facilities, installed in place after necessary backfill and compaction of the trench excavation has been performed. Video inspections of newly constructed sewer facilities performed prior to necessary backfill and compaction of the trench excavation will not be accepted or used by the City Representative to validate contractor workmanship.

The intention of these CCTV inspections is to confirm the quality of assets being delivered. If the CCTV inspections do not provide adequate information to make this determination, you will be asked to re-inspect.

Sewer/Storm Main CCTV

Personnel on the job are required to be trained and NASSCO PACP certified. Minimum PACP guidelines for any sewer or storm main CCTV inspection will be enforced. Inspections shall not exceed 0.5 feet per second and shall stop, pan and zoom all around all joints, lateral connections, culvert connections, and

any visible irregularities or defects. Video quality shall be minimum 1080p resolution (1920x1080 pixels) with adequate lighting to illuminate the pipe interior wall. The camera setup shall include a 1" diameter weighted target, preferably a ball, in front of the camera and measured at the beginning of the video to confirm its size.

The Contractor shall record by color video picture and voice recording, the main sewer and locations of the side sewer connections. **The video shall have the project name, limits of the sewer being televised, Maximo Asset ID, and the upstream and downstream manhole numbers (the Start_Node and End_Node fields from the pipe's GIS) superimposed on the beginning of each inspection**. The camera shall travel through the sewer at a speed at or below half of a foot (0.5 feet) per second. A continuous counter in feet measurement shall be superimposed at the bottom of the screen to show the distance from the starting manhole or a reference point to an exit manhole or reference point. The date of the video recording shall be superimposed on the screen. There shall be sufficient artificial light in the interior of the sewer to produce a clear well-focused picture and illuminate the pipe interior wall.

Exports to NASSCO Exchange Database format should result in the pipe's Maximo Asset ID (MXASSETNUM) being in the Pipe_Segment_Reference field and the Start_node value from the pipe's GIS in the NASSCO Upstream_MH field and the End_Node value from the pipe's GIS for the Downstream_MH field.

During the inspection, stop the tractor, pan and zoom at defects and irregularities in or on the pipe surface. Irregularities are defined as anything other than a uniform pipe wall material and includes scuffs, cobwebs, discoloration, or any NASSCO defined observation code. Pause and turn camera view at each lateral/culvert connection point. Code all observations such as defects, locations of lateral connections, change in pipe alignment, unusual conditions, and other discernible features, as defined in the NASSCO PACP observation codes. End inspection at FINISH manhole or other non-manhole junction (connection to another main sewer or change in pipe size as identified per sewer line shape file). Each inspection should only include one video.

Culvert CCTV Inspections

Personnel on the job are required to be trained and NASSCO PACP certified. Minimum PACP guidelines for any sewer culvert CCTV inspection will be enforced. Inspections shall not exceed 0.5 feet per second and shall stop at all joints, and any visible irregularities or defects. Video quality shall be high resolution (minimum 640x480 pixels) with adequate lighting to illuminate the pipe interior wall. The camera setup shall include a 1" diameter weighted target, preferably a ball, in front of the camera and measured at the beginning of the video to confirm its size.

The Contractor shall record by color video picture and voice recording, the culvert sewer. **The video shall have the project name, limits of the sewer being televised, Maximo Asset ID, and the upstream and downstream manhole numbers (the Start_Node and End_Node fields from the pipe's GIS) superimposed on the beginning of each inspection**. The camera shall travel through the sewer at a speed at or below half of a foot (0.5 feet) per second. A continuous counter in feet measurement shall be superimposed at the bottom of the screen to show the distance from the starting manhole or a reference point to an exit manhole or reference point. The date of the video recording shall be superimposed on the screen. There shall be sufficient artificial light in the interior of the sewer to produce a clear well-focused picture and illuminate the pipe interior wall.

Exports to NASSCO Exchange Database format should result in the pipe's Maximo Asset ID (MXASSETNUM) being in the Pipe_Segment_Reference field and the Start_node value from the pipe's GIS in the NASSCO Upstream_MH field and the End_Node value from the pipe's GIS for the Downstream_MH field.

During the inspection, stop the camera at defects and irregularities in or on the pipe surface. Irregularities are defined as anything other than a uniform pipe wall material and includes scuffs, cobwebs, discoloration, or any NASSCO defined observation code. Code all observations such as defects, change in pipe alignment, unusual conditions, and other discernible features, as defined in the NASSCO PACP observation codes. End inspection at FINISH access point or other non-manhole junction (connection to another main sewer or change in pipe size as identified per sewer line shape file). Each inspection should only include one video.

Lateral CCTV Inspections

Personnel on the job are required to be trained and NASSCO LACP certified. Minimum LACP guidelines for any sewer culvert CCTV inspection will be enforced. Inspections shall not exceed 0.5 feet per second and shall stop at all joints, and any visible irregularities or defects. Video quality shall be high resolution (minimum 640x480 pixels) with adequate lighting to illuminate the pipe interior wall.

The Contractor shall record by color video picture and voice recording, the culvert sewer. **The video shall have the project name, limits of the sewer being televised, Maximo Asset ID, and the upstream and downstream manhole numbers (the Start_Node and End_Node fields from the pipe's GIS) superimposed on the beginning of each inspection**. The camera shall travel through the sewer at a speed at or below half of a foot (0.5 feet) per second. A continuous counter in feet measurement shall be superimposed at the bottom of the screen to show the distance from the starting manhole or a reference point to an exit manhole or reference point. The date of the video recording shall be superimposed on the screen. There shall be sufficient artificial light in the interior of the sewer to produce a clear well-focused picture and illuminate the pipe interior wall.

Exports to NASSCO Exchange Database format should result in the pipe's Maximo Asset ID (MXASSETNUM) being in the Lateral_Segment_Reference field and the Start_node value from the lateral's/main sewer pipe's GIS in the NASSCO Upstream_MH field and the End_Node value from the lateral's/main sewer pipe's GIS for the Downstream_MH field.

During the inspection, stop the camera at defects and irregularities in or on the pipe surface. Irregularities are defined as anything other than a uniform pipe wall material and includes scuffs, cobwebs, discoloration, or any NASSCO defined observation code. Code all observations such as defects, locations of other lateral connections, change in pipe alignment, unusual conditions, and other discernible features, as defined in the NASSCO LACP observation codes. End inspection at FINISH access point. Each inspection should only include one video.

CCTV Submittal Guide

Dated January 2022

NASSCO Exchange Database (.mdb file)

Ig. 

- All TV Inspection submittals should include a NASSCO Exchange Database.
- NASSCO Exchange Databases are Microsoft Access databases (.mdb extensions) that contain PACP and LACP inspection metadata for the inspection videos they are being submitted with. These databases contain vital information such as but not limited to: the identification of the asset being inspected for each inspection*, a referential connection between an inspection in the database and its respective inspection video, the coded observations for each inspection, the inspection date and time, the name of the surveyor, etc. In addition to communicating valuable inspection data these databases also make it convenient and reliable for the CSD to transfer this data into our master database assuming that the database is in good condition (specifically the inspection and video links mentioned previously).
- The NASSCO Exchange Database should reference the same number of inspections as there are inspection videos in the submittal.

*The expected asset identification of an inspection would simply be the Maximo asset ID of the asset being inspected (Ig. P-123456, L-123456)**.** Other asset references do not conform to our standards and may or may not be useable. The following are examples of non-conforming IDs: the upstream – downstream node ids of a main sewer, or the address of a lateral / culvert (though the latter has proven to be unreliable).

Inspection video file and folder names and their relation to the inspections in the NASSCO Exchange Database

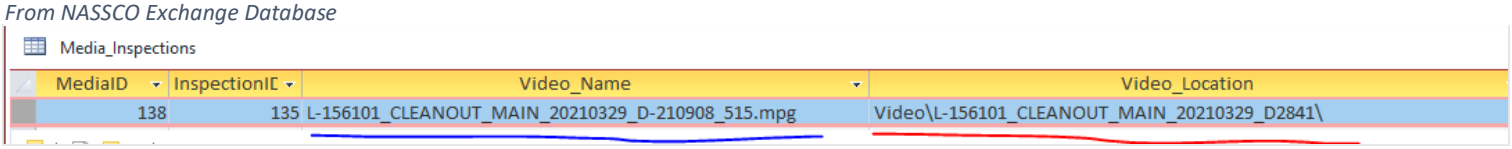
- The name of video files and the folders they are in should not be changed nor moved around. They need to retain their relative path to the NASSCO Exchange Database file.
- The names of video files, their folders and their locations are specifically set by the export procedure of NASSCO compliant software to create a connection between the video file and the

inspection metadata contained in the NASSCO Exchange Database. Changing file / folder names or their locations will break this connection.

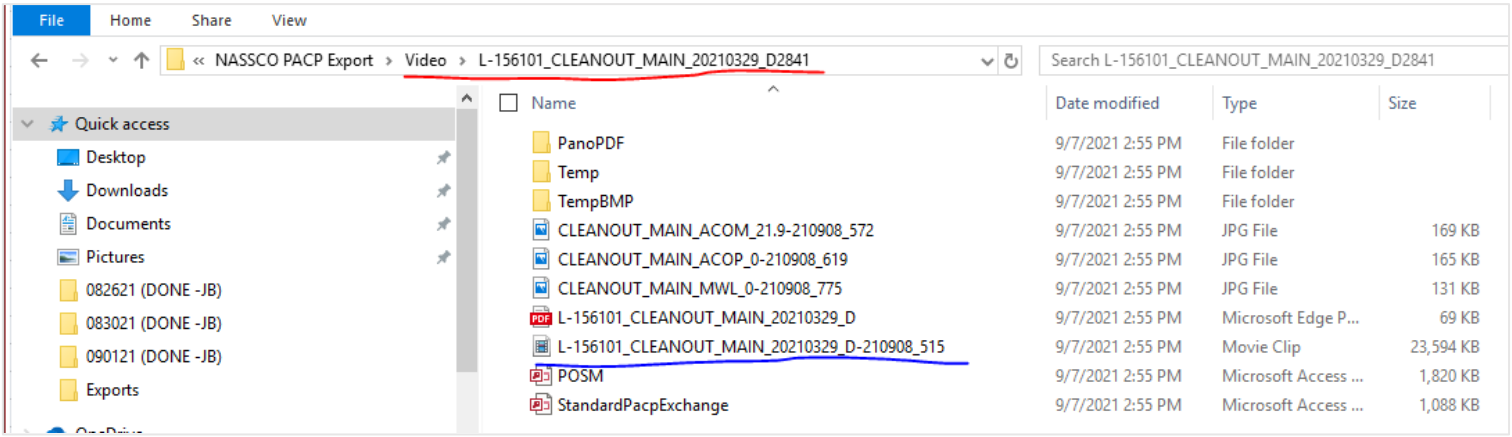
- It is important to note that broken file and folder paths make the import/review process take longer and in cases where we can no longer match the video to the asset, makes the submittal unusable. If file/folder paths are broken, we may ask for a resubmittal.

Below is an example of a correct inspection and video file connection:

From NASSCO Exchange Database



In Windows File Explorer



- Underlined in red you will see the reference to the video location in the database and the actual video location. Note that the video location is relative to the location of the database (which for this example is in the folder “NASSCO PACP Export”) so the reference in the database begins at the next folder “Video”. This is a correct example because the folder path referenced in the database is identical to the actual folder path of the video file.

- Underlined in blue is the reference to the video file name in the database and the actual video file name. This is a correct example because the file name referenced in the database is identical to the actual file name.

Exhibit F-1

Boundary Marking: Signage Locations

[attached]

A B C D E F

1 2 3 4 5

HAWES STREET

ARMSTRONG AVENUE

LOOP ROAD NORTH

BANCROFT AVE

CARROLL AVENUE

LOOP ROAD EAST

MATCHLINE - SEE SHEET 0-C2.01
MATCHLINE - SEE SHEET 0-C2.02
MATCHLINE - SEE SHEET 0-C2.03
MATCHLINE - SEE SHEET 0-C2.04

FUTURE CURB/GUTTER/SIDEWALK BY OTHERS, SHOWN FOR REFERENCE ONLY

EX. CSSM4 (FAXED OVER)

CB
RIM 8.92
INV OUT 10" 4.57
BOTTOM 2.74

CB
TC 9.88
INV 10" UNK
BOTTOM 2.98

CB
RIM 11.80
INV OUT 10" 7.45
BOTTOM 5.62

LPG

607
4 STORY
COMMERCIAL/
RESIDENTIAL
BLDG 11

700
USAR
BLDG 10

COMM
TOWER

610
CONEX
COMPLEX

MINIMALLY
DEVELOPED AREA
(FUTURE EXPANSION)
RUBBLE AREA

MINIMALLY
DEVELOPED AREA
(GRAVEL)

EX. 25' SFPUC
SERVICE AREA

EX. 35' SFPUC
SERVICE AREA

600/601
TOWER
BLDG 5

608
4 STORY
RES.
BLDG 6

606
3 STORY
HILLSIDE
RES.
BLDG 7

609B
2 STORY
PATIO
RES.
BLDG 8

609A
2 STORY
JR. FIVE
RES.
BLDG 9

400
MAINT. SHOPS
BLDG 4

LADDER DRILL

DIRTY
CLASSROOM

CLASSROOM

REEL

WASTE

TRANSFORMER, ATS &
EMERGENCY GENERATOR

200
APPARATUS BUILDING
BLDG 3

300
FIRE AND EMS SUPPORT
BUILDING ZONE
BLDG 2

100
ADMINISTRATION AND
CLASSROOM BUILDING ZONE
BLDG 1

PROPOSED SIGNAGE LOCATIONS

- ● FREESTANDING IN PLANTER AREA
- ▬ ATTACHED TO BUILDING

APPROX. 48" H

PROPOSED TYPICAL
SIGNAGE IN PLANTER AREA
APPROX. 20" X 30"
(48" HEIGHT)

30 0 30 60
scale 1" = 30' feet

DLR GROUP
RossDrulisCusenbery
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KUTTRANIERI ARCHITECTS INC
abercrombie PLANNING+DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION
03/05/2025

BKF ENGINEERS
200 4th STREET
SUITE 300
SANTA ROSA, CA 95401
(707) 583-8500
www.bkf.com

SAN FRANCISCO FIRE DEPARTMENT
DIVISION OF TRAINING

1236 CARROLL AVENUE, SAN FRANCISCO, CALIFORNIA

100% DD
03/10/2025
REVISIONS

20211630

GRADING PLAN - OVERALL

0-C2.00

211630_SITE.dwg

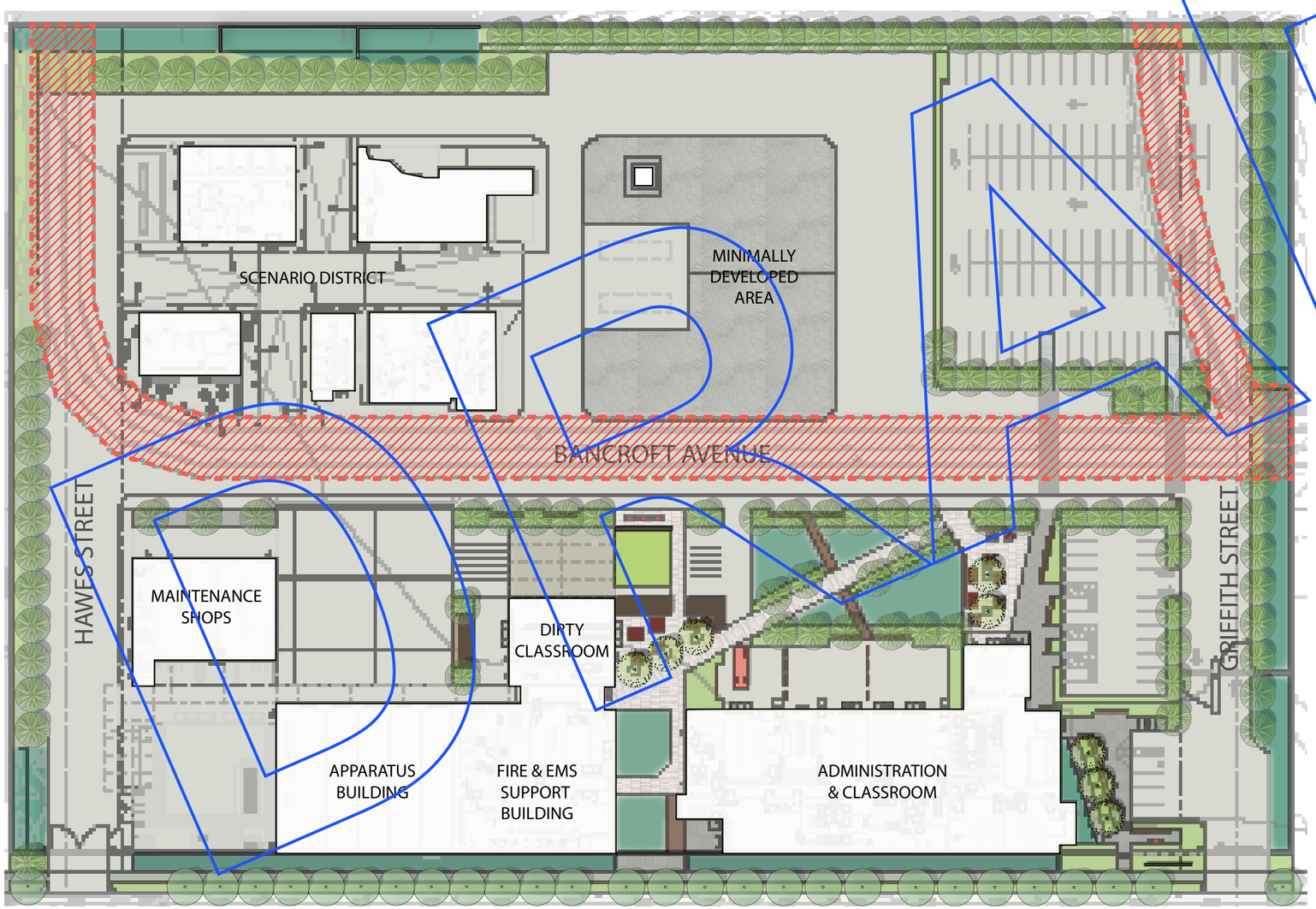
Fri Mar 07, 2025 at 2:19pm

Exhibit F-2

Boundary Marking: Form of Signage

[attached]

SITE USE RESTRICTIONS



SFPUC PERMANENT USE AREA

Restrictions:

1) No interference with SFPUC Access Rights
2) No interference with SFPUC Utility Use
3) No structures or excessive loading or storage of vehicles, materials and equipment
4) No trees or installation of any improvements not authorized in advance by the SFPUC

Reference:
SFPUC & SFFR Memorandum of Understanding San Francisco Fire Department Division of Training Agreement Dated XX/XX/XXXX, Paragraph 7. SFPUC Facilities Protection Measures, Section (d) Boundary Marking.

CONCEPTUAL DRAFT ONLY - NOT FINAL DESIGN