City and County of San Francisco
Office of Contract Administration
Purchasing Division
City Hall, Room 430
1 Dr. Carlton B. Goodlett Place
San Francisco, California 94102-4685

Agreement between the City and County of San Francisco

And
The Dutra Group
1000035542

AGREEMENT

This Agreement is made this [insert day] day of [insert month], [insert year], in the City and County of San Francisco ("City"), State of California, by and between The Dutra Group, located at 2350 Kerner Blvd Suite 200, San Rafael, CA 94901 ("Contractor") and City.

Recitals

WHEREAS, the Port of San Francisco ("Department") wishes to procure a crane barge (the "Crane Barge" or "Vessel") from Contractor; and

WHEREAS, Contractor represents and warrants that it is qualified to deliver the Goods required by City as set forth under this Agreement; and

WHEREAS, Contractor was competitively selected pursuant to Sourcing Event ID 0000006633 and

WHEREAS, this is a contract for Services and Goods and the Local Business Enterprise ("LBE") subcontracting participation requirement for the Services has been waived pursuant to waiver CMD14B0004125; and

WHEREAS, approval for the Agreement was obtained on August 19, 2024 from the Civil Service Commission under PSC number DHRPSC00041335 in the amount of $1,000,000 for the period of 28 months; and

WHEREAS, the Department has filed Ethics Form 126f2 (Notice of Submission of Proposal) because this Agreement has a value of $100,000 or more in a fiscal year and will require the approval of the Board of Supervisors;

WHEREAS, the Department has filed Ethics Form 126f4 (Notification of Contract Approval) because this Agreement has a value of $100,000 or more in a fiscal year and will require the approval of the Board of Supervisors;

WHEREAS, the City's Board of Supervisors approved this Agreement by [insert resolution number] on [insert date of Commission or Board action] in the amount of [insert Dollar Amount] for the period commencing [Insert Start Date] and ending [Insert End Date]; and

Now, THEREFORE, the parties agree as follows:

Article 1 Definitions

The following definitions apply to this Agreement:

1.1 "Agreement" means this contract document, including all attached appendices, and all applicable City Ordinances and Mandatory City Requirements specifically incorporated into this Agreement by reference as provided herein.

1.2 "City" or "the City" means the City and County of San Francisco, a municipal corporation, acting by and through both its Director of the Office of Contract Administration or the Director's designated agent, hereinafter referred to as "Purchasing" and The Port of San Francisco.

1.3 "City Data" means that data as described in Article 13 of this Agreement which includes, without limitation, all data collected, used, maintained, processed, stored, or generated by or on behalf of the City in connection with this Agreement. City Data includes, without limitation, Confidential Information.

1.4 "CMD" means the Contract Monitoring Division of the City.

1.5 "Confidential Information" means confidential City information including, but not limited to, personal identifiable information ("PII"), protected health information ("PHI"), or individual financial information (collectively, "Proprietary or Confidential Information") that is subject to local, state or federal laws restricting the use and disclosure of such information, including, but not limited to, Article 1, Section 1 of the California Constitution; the California Information Practices Act (Civil Code § 1798 et seq.); the California Confidentiality of Medical Information Act (Civil Code § 56 et seq.); the federal Gramm-Leach-Bliley Act (15 U.S.C. §§ 6801(b) and 6805(b)(2)); the privacy and information security aspects of the Administrative Simplification provisions of the federal Health Insurance Portability and Accountability Act (45 CFR Part 160 and Subparts A, C, and E of part 164); and San Francisco Administrative Code Chapter 12M ("Chapter 12M"). Confidential Information includes, without limitation, City Data.

1.6 "Contractor" means The Dutra Group, located at 2350 Kerner Blvd Suite 200 San Rafael CA 94901.

1.7 The "Contract Documents" form the entire Contract for performance of the Work and provision of the Goods and Services, and consist of the following: the Agreement and other documents listed in the Agreement; and all appendices and exhibits attached to the Agreement and all addenda thereto. Nothing in the Contract Documents shall be construed to create a contractual relationship between the City and a Subcontractor, Supplier, Lower Tier Subcontractor or Supplier or a person or entity other than the City and Contractor.

1.8 "Deliverables" means Contractor's or its subcontractors' work product, including any partially-completed work product and related materials, resulting from the Services provided by Contractor to City during the course of Contractor's performance of the Agreement, including without limitation, the work product described in the "Scope of Services" attached as Appendix A.

1.9 "Goods" or "Commodities" means the products, materials, equipment or supplies to be provided by Contractor under the Contract Documents.

1.10 "Mandatory City Requirements" means those City laws set forth in the San Francisco Municipal Code, including the duly authorized rules, regulations, and guidelines implementing such laws that impose specific duties and obligations upon Contractor.

1.11 "Party" and "Parties" means the City and Contractor either collectively or individually.

1.12 "Services" means the work performed by Contractor under this Agreement as specifically described in the "Scope of Services" attached as Appendix A, including all services, labor, supervision, materials, equipment, actions and other requirements to be performed and furnished by Contractor under this Agreement.

1.13 "Work" means the performance by Contractor of all its responsibilities and obligations set forth in the Contract Documents.

Article 2 Term of the Agreement

2.1 The term of this Agreement shall commence on the date the last party signs this Agreement, as indicated by the date stated opposite that party's signature (the "Effective Date") and expire on July 14, 2027, unless earlier terminated as otherwise provided herein.

2.2 **Options.** The City has the option to renew the Agreement for a period of one (1) additional year. The City may extend this Agreement beyond the expiration date by exercising an option at the City's sole and absolute discretion and by modifying this Agreement as provided in Section 11.5, "Modification of this Agreement."

Article 3 Financial Matters

3.1 **Certification of Funds; Budget and Fiscal Provisions.**

3.1.1 **Termination in the Event of Non-Appropriation.** This Agreement is subject to the budget and fiscal provisions of Section 3.105 of the City's Charter. Charges will accrue only after prior written authorization certified by the Controller, and the amount of City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization. This Agreement will terminate without penalty, liability or expense of any kind to City at the end of any fiscal year if funds are not appropriated for the next succeeding fiscal year. If funds are appropriated for a portion of the fiscal year, this Agreement will terminate, without penalty, liability or expense of any kind at the end of the term for which funds are appropriated. City has no obligation to make appropriations for this Agreement in lieu of appropriations for new or other agreements. City budget decisions are subject to the discretion of the Mayor and the Board of Supervisors. Contractor's assumption of risk of possible non-appropriation is part of the consideration for this Agreement.

THIS SECTION CONTROLS AGAINST ANY AND ALL OTHER PROVISIONS OF THIS AGREEMENT.

3.1.2 **Maximum Costs.** City's payment obligation to Contractor cannot at any time exceed the amount certified by City's Controller for the purpose and period stated in such certification. Absent an authorized emergency per the City Charter or applicable Code, no City representative is authorized to offer or promise, nor is City required to honor, any offered or promised payments to Contractor under this Agreement in excess of the certified maximum amount without the Controller having first certified the additional promised amount and the

Parties having modified this Agreement as provided in Section 11.5, "Modification of this Agreement."

3.1.3 **Notice of Appropriations or Non-Appropriations.** City shall notify Contractor of each appropriation or non-appropriation that is made for payment of the Work within ten (10) business days thereof.

3.2 **Authorization to Commence Work**. Contractor shall not commence any work under this Agreement until City has issued formal written authorization to proceed, such as a purchase order, task order or notice to proceed. Such authorization may be for a partial or full scope of work.

3.3 **Compensation.**

3.3.1 **Calculation of Charges.** Contractor shall provide an invoice to the City for Goods delivered in accordance with Appendix B, "Calculation of Charges" and Appendix C, "Progress Payment, Delivery and Compliance Guidelines. Compensation shall be made for Goods identified in the invoices that the City, in its sole discretion, concludes has been satisfactorily delivered. Subject to any price adjustments in accordance with this Agreement, including without limitation those set forth in Appendix C, in no event shall the amount of this Agreement exceed **Sixteen Million Seven Hundred Forty-Seven Thousand One Hundred Ninety-Six Dollars ($16,747,196)**. The breakdown of charges associated with this Agreement appears in Appendix B, "Calculation of Charges." In no event shall City be liable for interest or late charges for any late payments. City will not honor minimum service order charges under this Agreement.

3.3.2 **Payment Limited to Satisfactory Delivery of Goods.** Contractor is not entitled to any payments from City until City approves the Goods delivered pursuant to this Agreement. Payments to Contractor by City shall not excuse Contractor from its obligation to replace unsatisfactory Goods, even if the unsatisfactory character may have been apparent or detected at the time such payment was made. Goods delivered pursuant to this Agreement that do not conform to the requirements of this Agreement may be rejected by City and in such case must be replaced by Contractor without delay at no cost to the City.

3.3.3 **Withhold Payments.** If Contractor fails to provide Goods in accordance with Contractor's obligations under this Agreement, the City may withhold any and all related payments due Contractor until such failure to perform is cured. Contractor shall not stop providing Goods as a result of City's withholding of payments, as provided herein.

3.3.4 **Invoice Format**. Invoices submitted by Contractor under this Agreement must be in a form acceptable to the Controller and City and include a unique invoice number and a specific invoice date. Payment shall be made by City as specified in Section 3.3.8, or in such alternate manner as the Parties have mutually agreed upon in writing. **All invoices must show the PeopleSoft Purchase Order ID, PeopleSoft Supplier Name and ID, complete description of the Services or Goods delivered (including manufacturer name, manufacturer SKU, and product description), sales/use tax (if applicable), unit cost, unit of measure, quantities, extended cost, and contract payment terms. Where Contractor's pricing is based on a percentage mark-up or discount over manufacturer's list price, invoices must also include the manufacturer list price and Contractor's percentage mark-up or discount over manufacturer's list price. Where Contractor's pricing is based on a percentage mark-up**

over cost, invoices must also include Contractor's cost and Contractor's percentage mark-up over Contractor's cost. Invoices that do not include all required information or contain inaccurate information will not be processed for payment.

3.3.5 **Reserved (LBE Payment and Utilization Tracking System).**

3.3.6 **Getting paid by the City for Goods.**

(a)The City and County of San Francisco utilizes the Paymode-X® service offered by Bank of America Merrill Lynch to pay City contractors. Contractor must sign up to receive electronic payments to be paid under this Agreement. To sign up for electronic payments, visit http://portal.paymode.com/city_countyofsanfrancisco.

(b) At the option of the City, Contractor may be required to submit invoices directly in the City's financial and procurement system (PeopleSoft) via eSettlement. Refer to https://sfcitypartner.sfgov.org/pages/training.aspx for more information on eSettlement. For access to PeopleSoft eSettlement, submit a request through sfemployeeportalsupport@sfgov.org.

3.3.7 **Reserved (Grant Funded Contracts).**

3.3.8 **Payment Terms.**

3.4 **Payment Due Dates**: Compensation shall be paid on a progress payment basis, as set forth in Appendix C of this Agreement. Unless City notifies the Contractor that a dispute exists within five business days of receiving a full and complete payment application, milestone Payments shall be made within 30 calendar days of Contractor's invoice for completed milestones. Payment is deemed to be made on the date on which City has issued a check to Contractor (assuming the check clears) or, if Contractor has agreed to electronic payment, the date on which City has posted electronic payment to Contractor.

3.5 If any undisputed progress payment that includes payment for work performed by Conrad Shipyard L.L.C. ("Conrad") is not made within thirty (30) -days of when it is due, the Delivery Date shall be extended by one day for each day that the full amount due of such payment has not been made.

(a) **Reserved (Payment Discount Terms).**

3.6 **Audit and Inspection of Records**. Contractor agrees to maintain and make available to the City, during regular business hours, accurate books and accounting records relating to the Goods. Contractor will permit City to audit, examine, copy, and make excerpts and transcripts from such books and records, and to make audits of all invoices, materials, payrolls, records or personnel and other data related to all other matters covered by this Agreement, whether funded in whole or in part under this Agreement. Contractor shall maintain such data and records in an accessible location and condition for a period of not less than five years, unless required for a longer duration due to Federal, State, or local requirements of which the City will notify Contractor in writing, after final payment under this Agreement or until after final audit has been resolved, whichever is later. The State of California or any Federal agency having an interest in the subject matter of this Agreement shall have the same rights as conferred upon City by this Section. Contractor shall include the same audit and inspection rights and record retention requirements in all subcontracts.

3.7 **Submitting False Claims**. The full text of San Francisco Administrative Code Section 21.35, including the enforcement and penalty provisions, is incorporated into this Agreement. Any contractor or subcontractor who submits a false claim shall be liable to City for the statutory penalties set forth in that section.

3.8 **Reserved (Payment of Prevailing Wages).**

3.9 **Reserved (Displaced Worker Protection Act).**

Article 4 Goods and Services

4.1 **Reserved (Primary and Secondary Contractors).**

4.2 **Reserved (Term Agreement – Indefinite Quantities).**

4.3 **Qualified Personnel.** Contractor represents and warrants that it is qualified to deliver the Services and Goods required by City, and that all Services and Goods will be delivered by competent personnel with the degree of skill and care required by current and sound professional procedures and practices. Contractor will comply with City's reasonable requests regarding assignment and/or removal of personnel, but all personnel, including those assigned at City's request, must be supervised by Contractor. Contractor shall commit sufficient resources for timely completion within the project schedule.

4.4 **Reserved (Services).**

4.5 **Awarded Services.** Contractor agrees to perform the Services stated in Appendix A, "Scope of Services." Officers and employees of City are not authorized to request and City is not required to compensate for Services beyond those stated. If, during the term of the Agreement, a contract service is determined to be unacceptable for a particular department, and such is documented by Purchasing, Contractor agrees that the service will be canceled and removed from the Agreement without penalty to City. City's sole obligation to Contractor is payment for Services performed prior to the cancellation date as set forth under Article 8, Termination and Default. City shall give Contractor ten (10) days' notice prior to any cancellation. City will contract for the required service from any source and in the manner as determined by Purchasing. Contractor must notify Purchasing in writing, which can include email, certified mail, or other trackable mail, thirty (30) days in advance of any changes in the Services required in the Agreement. Any changes made without the approval of Purchasing will constitute a Default.

4.5.1 **Subcontracting.** Contractor may subcontract portions of the Services only upon prior written approval of City. Contractor is responsible for its subcontractors throughout the course of the work required to perform the Services. All subcontracts must incorporate the terms of Article 10 "Additional Requirements Incorporated by Reference" of this Agreement, unless inapplicable. Neither Party shall, on the basis of this Agreement, contract on behalf of, or in the name of, the other Party. Any agreement made in violation of this provision shall be null and void. City's execution of this Agreement constitutes its approval of the subcontractors listed below:

Conrad Shipyard L.L.C.: Barge Hull & Outfitting Subcontractor

Techcrane International, LLC: Crane Manufacturer

Glosten, Inc.: Naval Architect and Designer

4.5.2 **Independent Contractor; Payment of Employment Taxes and Other Expenses.**

(a) **Independent Contractor**. For the purposes of this Section 4.4, "Contractor" shall be deemed to include not only Contractor, but also any agent or employee of Contractor. Contractor acknowledges and agrees that at all times, Contractor is an independent contractor and is wholly responsible for the manner and means by which it performs the Services and work required under this Agreement. Contractor, and its agents, and employees will not represent or hold themselves out to be employees of City at any time. Contractor shall not have employee status with City, nor be entitled to participate in any plans, arrangements, or distributions by the City pertaining to or in connection with any retirement, health or other benefits that City may offer its employees. Contractor is liable for its acts and omissions. Contractor shall be responsible for all obligations and payments, whether imposed by federal, state or local law, including, but not limited to, FICA, income tax withholdings, unemployment compensation, insurance, and other similar responsibilities related to Contractor's performing Services and work, or any agent or employee of Contractor providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between City and Contractor or any of its agents or employees. Contractor agrees to maintain and make available to City, upon request and during regular business hours, accurate books and accounting records demonstrating Contractor's compliance with this Section. Should City determine that Contractor is not performing in accordance with the requirements of this Section, City shall provide Contractor with written notice of such failure. Within five (5) business days of Contractor's receipt of such notice, and in accordance with Contractor policy and procedure, Contractor shall remedy the deficiency. Notwithstanding, if City believes that an action of Contractor warrants immediate remedial action by Contractor, City shall contact Contractor and provide Contractor in writing with the reason for requesting such immediate action.

(b) **Payment of Employment Taxes and Other Expenses.** Should City, in its discretion, or a relevant taxing authority such as the Internal Revenue Service or the State Employment Development Division, or both, determine that Contractor is an employee for purposes of collection of any employment taxes, the amounts payable under this Agreement shall be reduced by amounts equal to both the employee and employer portions of the tax due (and offsetting any credits for amounts already paid by Contractor which can be applied against this liability). City shall then forward those amounts to the relevant taxing authority. Should a relevant taxing authority determine a liability for past Services performed by Contractor for City, upon notification of such fact by City, Contractor shall promptly remit such amount due or arrange with City to have the amount due withheld from future payments to Contractor under this Agreement (again, offsetting any amounts already paid by Contractor which can be applied as a credit against such liability). A determination of employment status pursuant to this Section 4.4 shall be solely limited to the purposes of the particular tax in question, and for all other purposes of this Agreement, Contractor shall not be considered an employee of City. Notwithstanding the foregoing, Contractor agrees to indemnify and hold harmless City and its officers, agents and employees from, and, if requested, shall defend them against any and all claims, losses, costs, damages, and expenses, including attorneys' fees, arising from this Section.

4.5.3 **Warranty (Services).** As referenced in Appendix D, "Design Specifications and Construction Drawings", Exhibit A-O.

4.6 **Goods.**

4.6.1 **Awarded Goods.** If during the term of the Agreement, a contract item is determined to be unacceptable for a particular use, and such is documented by a City Department and as determined by Purchasing, Contractor agrees that the item will be canceled and removed from the Agreement as set forth under Article 8, Termination and Default. City's sole obligation to Contractor shall be as set forth under Article 8, Termination and Default. City shall give Contractor ten (10) calendar days' notice prior to any cancellation. City will purchase the required replacement item from any source and in the manner as determined by Purchasing. If a contracted item has been discontinued by the manufacturer or is deemed temporarily unavailable, Contractor shall search the marketplace and propose a substitute , which if accepted by City shall be issued by the City through a Change Order. Contractor must notify Purchasing in writing, which can include email, certified mail, or other trackable mail, of any changes in the description of article, brand, product code or packaging. Any changes made without the approval of City will constitute a Default under this Agreement.

4.6.2 **Place of Manufacture.** No article furnished hereunder shall have been made in prison or by convict labor, except Goods purchased for use by City's detention facilities. The City may require Contractor to provide within seven (7) working business days from the date they are requested to do so, information and documentation requested by Purchaser, including but not limited to: sources of supply, distribution, dealership or agency agreements and authorizations from manufacturer(s) they claim to represent, lines of credit with financial institutions for manufacturer(s) they claim to represent, lines of credit with financial institutions and suppliers, numbers of employees, trade references and any other information to determine the Contractor's fitness to supply the Agreement requirements.

4.6.3 **Electrical Products.** Goods must comply with all applicable laws, ordinances and other legal requirements, including (among others) the Cal-OSHA regulations in Title 8 of the Code of Regulations and, for electrical products, Sections 110.2 and 110.3 (B) of the S.F. Electrical Code.

4.6.4 **Condition of Goods.** Goods offered and furnished must be new and previously unused, and of manufacturer's latest model, unless otherwise specified herein. Contractor shall establish quality control measures, as applicable to department's operations, and promptly provide documented reports to City of any product defects or premature failures.

4.6.5 **Inspection.** All Goods supplied shall be subject to inspection and acceptance or rejection by Purchasing or any department official responsible for inspection. Non-conforming or rejected Goods may be subject to reasonable storage fees.

4.6.6 **F.O.B. Delivery.** The Contractor shall deliver a crane barge that meets the specifications of the Port on or before December 1, 2026, with final inspections and commissioning no later than February 1, 2027. Refer to the Appendices Exhibits for delivery and acceptance procedures.

4.6.7 **Failure to Deliver.** If Contractor fails to deliver Goods of the quality, in the manner or within the time called for by this Agreement, such Goods may be bought from any source by Purchasing as set forth under Section 8.2 Termination for Default. If City is required to pay a price that exceeds the price agreed upon by this Agreement, the excess price

will be charged to and collected from Contractor (or sureties on its bond, if bond has been required); in accordance with terminating the Agreement for default.

4.6.8 **Safety Data Sheets.** Where required by law or by City, Contractor will include Safety Data Sheets (SDSs) with delivery for applicable items. Failure to include the SDSs for such items will constitute a material breach of contract and may result in refusal to accept delivery.

4.6.9 **Reserved.**

4.6.10 **Warranty.** In addition to all requirements set forth in Appendix D, Exhibit A-0, Contractor warrants to City that the manufacturer's warranty and service will be passed on to the City at the time of delivery.

4.7 **Work.** Contractor agrees to complete the Work necessary to furnish the Goods as specified in Appendix A, "Scope of Work". Officers and employees of the City are not authorized to request, and the City is not required to reimburse the Contractor for, Work beyond the Scope of Work listed in Appendix A except through a Change Order.

4.8 **Assignment.** Neither this Agreement, nor any duties or obligations hereunder, may be directly or indirectly assigned, novated, hypothecated, transferred, or delegated by Contractor, or, where the Contractor is a joint venture, a joint venture partner, (collectively referred to as an "Assignment") unless first approved by City by written instrument executed and approved in the same manner as this Agreement in accordance with the Administrative Code. The City's approval of any such Assignment is subject to the Contractor demonstrating to City's reasonable satisfaction that the proposed transferee is: (i) reputable and capable, financially and otherwise, of performing each of Contractor's obligations under this Agreement and any other documents to be assigned, (ii) not forbidden by applicable law from transacting business or entering into contracts with City; and (iii) subject to the jurisdiction of the courts of the State of California. A change of ownership or control of Contractor or a sale or transfer of substantially all of the assets of Contractor shall be deemed an Assignment for purposes of this Agreement. Contractor shall immediately notify City about any Assignment. Any purported Assignment made in violation of this provision shall be null and void.

4.9 **Timely Delivery of Barge and Liquidated Damages**

4.9.1 **Delivery Date**. Contractor agrees to deliver the completed Vessel to Owner no later than December 1, 2026 (designated for purposes of this Agreement as the "**Delivery Date**"), with final inspections and commissioning no later than February 1, 2027.

4.9.2 Timely delivery of the Vessel is of the essence. Contractor shall keep City updated on status of vessel construction, including any adjustments to Contractor's construction schedule. Notwithstanding any other term to the contrary in this Agreement, if Contractor fails to deliver the Vessel on the Delivery Date, or notifies the City that the Vessel will not be delivered on the Delivery Date, as the same may have been adjusted through any mutually executed modification to this Agreement Contractor's sole liability to the City for such delay shall be the liquidated damage sum of $4,000 per day of delay in delivery after the Delivery Date and, upon the City's election to terminate this Agreement for default as set forth in Section 8.2, the City may take over the work and complete it by contract or otherwise, for which Contractor and its surety shall be liable for any increased costs incurred by the City in completing the work, during which liquidated damages shall continue to apply until completed.

The parties specifically agree that in no event shall Contractor's liability for liquidated damages for delay exceed the amount set forth in Section 3.3.1 of this Agreement. In the event Contractor does not deliver the Vessel by the Delivery Date, the City may in addition to collecting liquidated damages, declare Contractor to be in default and exercise its remedies for default in accordance with this Section 4.9.2. The parties have carefully considered and separately negotiated the contents of this paragraph, especially in light of the difficulty of ascertaining and proving with certainty any actual damages that would be experienced by the City on account of delays in completion of the Work. The parties agree that the liquidated damages set forth in this paragraph, as well as the limitation of damages set forth in this paragraph, are reasonable in light of such factors.

4.9.3 If Contractor is more than 90 days behind on any milestone set forth in the appendices, including Appendix C ("Progress Payments, Delivery and Compliance Requirements") or Appendix E ("Schedule"), excluding any delays to the extent attributable to the City's actions or inactions, the City may, in its sole discretion, elect by written notice to Contractor to either (i) continue performance under this Agreement; or (ii) terminate this Agreement for Default. For purposes of this provision, Contractor's production schedule will be based on a Vessel delivery on or before December 1, 2026 and the milestones will be only those events that correspond with the payment milestones set forth in Appendix C and Appendix E.

4.10 **Force Majeure.**

4.10.1 The Delivery Date shall be extended by actual time lost, along with Contractor's or its subcontractors' loss of sequence, if any, due to Force Majeure events. A Force Majeure event is defined as any event (except inclement weather of ordinary seasonable nature, other than as provided for in Section 4.10.2) beyond the control of Contractor or its subcontractors which prevents or delays Contractor or its subcontractors from performing its obligations under this Agreement, among which, but not exclusive of others, are the following: acts of God; war between the United States and a foreign country; civil war; riot or insurrection in the United States; preparation for war; requirement, urgency, or intervention of civil, naval, or military authorities or other agencies of Government; arrests and restraints of rulers and people; blockades, embargoes; vandalism, sabotage; epidemics; pandemics; strikes, lockouts, or other industrial disturbances; earthquakes; landslides, floods, droughts, hurricanes and cyclonic storms; high sea conditions during transit; damage by lightning, explosions, collisions, strandings, fires; government priorities; delays transiting through the Panama Canal that are beyond the control of Contractor or its subcontractors; delays of carriers by land, water or air; delays of vendors due to any of the above enumerated causes; any delay or non-delivery of City-furnished material and/or equipment, delays caused by changes authorized by City, and delays of material which Contractor or its subcontractors cannot avoid with the exercise of due diligence and planning. Force Majeure shall also include delays caused by Contractor's or its subcontractor's cessation of work to prepare and secure the shipyard or Vessel from the anticipated effects of a named tropical storm or hurricane projected by the National Hurricane Center to make landfall in three (3) calendar days or less within three hundred miles of the Shipyard and the time reasonably required to restore shipyard infrastructure, equipment, machinery and facilities following the passage of such named tropical storm or hurricane.

4.10.2 Rain or high winds will not be considered a Force Majeure event unless its occurrence requires a shutdown of a substantial portion of Contractor's or its subcontractors' outside work prior to 12:00 noon on a regularly scheduled work day and, for each such day

beyond the first ten (10) such days, Contractor will be entitled to a one (1) day extension of the Delivery Date. Rain and other weather may also be considered a Force Majeure event if, as of the Delivery Date, rain or other weather conditions have prevented Contractor or its subcontractors from completing painting of the Vessel in accordance with the manufacturer's specifications, as per the provisions for Delivery.

4.10.3 Shortages of skilled labor shall not be considered Force Majeure unless (1) such shortage results from a Force Majeure event that is explicitly identified as an example of a Force Majeure event in Section 4.10.1 and (2) Contractor's or its subcontractor's shows that diligence has been used in recruiting, hiring, and maintaining a sufficient work force and that Contractor's or its subcontractor's wage scale for each classification of employee, during the pendency of this Agreement, retains the same competitive relationship as presently exists between Contractor's or its subcontractor's labor force and that of comparable yards in Contractor's or its subcontractor's area, or unless Contractor's or its subcontractor's establishes that such shortage was caused by a dislocation of a substantial portion of the work force of the area due to a hurricane, flood or other catastrophe.

4.10.4 No extension of the completion date due to Force Majeure, however, shall suspend, alter or affect Conrad's / Contractor's right to receive or City's duty, if any, to compensate for all Work completed until the commencement of the date of Force Majeure suspension.

4.10.5 As soon as possible, but in any event within five (5) days of knowledge that the Delivery Date will be affected by any Force Majeure event, Contractor shall notify City in writing, and shall furnish an estimate, if possible, of the extent of the delay. Upon receipt of any such notice, City shall, within five (5) business days, acknowledge the same in writing and indicate agreement if such development is to be treated as a Force Majeure event or state any objections, and the reasons therefore, to acceptance of this development as a Force Majeure event. If City shall fail to respond within five (5) business days, the extension of time shall be considered approved. If and when the completion of the Vessel is delayed by Force Majeure, the Delivery Date shall be extended by a period equal to the period of the delay.

4.11 **Bond Requirements**: The following Bonds are required for the performance of this Agreement:

4.11.1 **Performance Bond.** Contractor is required to furnish a performance bond, in a form acceptable to the City, in a sum of not less than 100% of the amount of the Agreement to guarantee the faithful performance of this Agreement. The bond must be approved as to sufficiency and qualifications of the surety by the Controller.

4.11.2 **Payment Bond.** A Payment (Labor and Materials) Bond, in a form acceptable to the City, in the amount of 100% of the contract to guarantee the payment of wages for services engaged and of bills contracted for materials, supplies and equipment used in the performance of this Agreement. Each bond must be approved as to form by the City Attorney, and approved as to sufficiency and qualifications of the surety by the Controller. The bonds must be renewed annually.

4.11.1 **Bond Obligation — Duration**. The term of the Performance Bond and the Labor and Materials Bond of this Agreement shall begin on the date that the contract is awarded and shall extend for until Acceptance of the Vessel. If bonds are required by the City

after Acceptance, the bond amount may be decreased by Contractor to 10% of the purchase price and will remain in effect for a period not less than one (1) year following the date of Acceptance or the time required to resolve any items of incomplete work under this Agreement and the payment of any disputed amounts under this Agreement (including any disputed warranty claims remaining after one year), whichever time period is longer.

Article 5 Insurance and Indemnity

5.1 **Insurance.**

5.1.1 **Required Coverages. Without in any way limiting Contractor's obligation to indemnify the City, including any liability pursuant to the "Indemnification" section of this Agreement, Contractor must maintain in force, during the full term of the Agreement, insurance in the following amounts and coverages:**

(a) Commercial General Liability coverage to include, but not limited to, broad form property damage, personal injury, premises, completed operations and products liability, and contractual liability covering all liability assumed by contractor under the terms of this Contract and with limits of liability not less than $10,000,000 each occurrence . Contractor shall maintain such insurance through the expiration of each warranty period.

(b) Automobile Liability insurance with a combined single limit of $5,000,000 per occurrence for Bodily Injury and Property Damage.

(c) U.S. Longshore and Harborworkers' Act Insurance; Jones Act; Workers' Compensation. Each as applicable, U.S. Longshore and Harborworkers' Act insurance in statutory amounts, and Jones Act insurance with limits not less than $5 million, and workers' compensation insurance in statutory amounts with employer's liability limit not less than $2 million for each accident, injury or illness, covering all persons employed directly by Contractor in accordance with applicable law or statute;

(d) Maritime Employer's Liability Insurance (including transportation, wages, Maintenance and Cure) for limits not less than $2,000,000 each person and each occurrence.

(e) Pollution Liability Insurance to include coverage for a) sudden and accidental pollution prior to the Vessel being launched in an amount not less than $5,000,000 per occurrence; and b) Contractor/Vessel pollution after the Vessel is launched in an amount not less than $5,000,000 per occurrence containing such terms acceptable to the City and no more restrictive than provided under WQIS policy forms or equivalent.

5.1.2 **Shipyard Insurance**

At any and all times during the term of this Contract, Contractor shall at its own expense maintain, with an insurance company or companies, with a minimum rating by A.M. Best Company of A - VIII or equivalent, and authorized to do business in the state in which Work is to be performed, insurance of the kind and in the minimum amounts as follows:

(a) Hull and Machinery Insurance. If not covered through the Builder's Risk Insurance required in 5.1.2 (c) below, Contractor shall maintain hull and machinery insurance on the Vessel from launch through final delivery, including the entire transit voyage, in an amount equal to the full replacement value of the Vessel.

(b) Property Insurance. Machinery, material or equipment to be installed or included as part of the Vessel, and until inception of Builders Risk insurance, Contractor, at its expense, shall keep all such machinery, material and equipment, including City's, insured at all times under Contractor's property insurance policy.

(c) Builder's Risk Insurance.

(i) From the time of commencement of construction, and until Delivery of the Vessel, Contractor, at its expense, shall keep the Vessel and all machinery, material and equipment to be installed in the Vessel, including City's, insured at all times under an all-risk form Marine Builders Risk policy, acceptable to City (such acceptance not to be unreasonably withheld). Contractor may utilize existing policies of insurance that cover the risks listed in subparagraph (c)(2)-(c)5) of this Article, provided that such policies are maintained by Contractor / Contractor's vessel fabrication subcontractor in accordance with the provisions of paragraph (b) of this Article and name City as loss payee as their interests may appear.

(ii) Minimum Sum. The minimum sum insured shall be the completed or replacement Vessel Price, whichever is greater, plus the value of any progress payments made by City to Contractor and for items furnished or paid for by City. Such policy limit shall be dedicated to the Vessel and the City shall be named as Loss Payee, as interests may appear.

(iii) The insurance shall cover all usual marine risks, but without prejudice to the generality of the foregoing, shall cover:

5.1.2.c.iii.1. All risks of loss or damage, including earthquake, volcanic eruption, hurricane, named windstorm and tidal wave, in respect of the Vessel and all machinery, material and equipment, whether at the Contractor or suppliers' premises or in transit or elsewhere, including during launching and trials;

5.1.2.c.iii.2. Strikes, riots, civil commotions, and malicious damage;

5.1.2.c.iii.3. Hull War Risks while the Vessel is at the Contractor or other premises of Contractor or any subcontractor, including after the Vessel has been launched and is either dockside, in sea trials, or transit;

5.1.2.c.iii.4. Coverage for Terrorism while the Vessel is at the Contractor or other premises of Contractor or any subcontractor, including after the Vessel has been launched and is either dockside, in sea trials, or transit;

5.1.2.c.iii.5. Collision,

5.1.2.c.iii.6. Protection and Indemnity Coverage including coverage for injury to employees, crew and/or third parties; and crew and/or third parties (with a minimum amount of USD $10,000,000 per occurrence).

(iv) Coverage shall include cost escalation coverage and coverage for Contractor's soft costs. Policy deductible shall be no more than $100,000 per occurrence. Coverage shall be the equivalent of the American Institute Builder's Risk Clauses (July 1, 1973) with Addendum 1 and shall not include Addendum 2. Such coverage shall further include coverage for the cost of renewing faulty welds and/or costs to correct faulty workmanship. Coverage shall be written without risk of liability of Purchaser for payment and

without deduction for depreciation. There shall be no coinsurance penalty provision in any such policy.

(v) In addition to liability for physical loss of, damage to, or damage caused by the Vessel imposed upon Contractor by law or by this Contract, the Marine Builder's Risk Insurance Policy shall be written to specifically include, in part:

5.1.2.c.v.1. All Ship underway activity as often as necessary for completion and testing of the Vessel;

5.1.2.c.v.2. A statement that the policy is primary to all other collectible insurance.

(d) Other Insurance. Contractor, at its expense, shall keep and maintain in effect the following additional insurance for the duration of this Contract and with respect to the performance by Contractor of any guaranty work as referenced in Appendix D, "Design Specifications and Construction Drawings", Exhibit A-O.

5.1.3 **Inland Marine/Bailees/Cargo in transit over land for the full replacement value of the crane barge and/or other equipment while in transit and in the care, custody and control of the contractor or subcontractors.**

5.1.4 **Additional Insured**

(a) The Commercial General Liability policy must be endorsed to name as Additional Insured the City and County of San Francisco, the Port of San Francisco, their Board Members, Commissioners, Officers, Agents, and Employees, and Herbert Engineering Corp to the extent of Contractor's liability and indemnity obligations under this Agreement.

(b) The Commercial Automobile Liability Insurance policy must be endorsed to name as Additional Insured the City and County of San Francisco, the Port of San Francisco, their Board Members, Commissioners, Officers, Agents, and Employees, and Herbert Engineering Corp to the extent of Contractor's liability and indemnity obligations under this Agreement.

(c) The Business Auto Liability Policy shall be endorsed to include an auto pollution Additional Insured Endorsement, as applicable to the extent of Contractor's liability and indemnity obligations under this Agreement;

(d) Per the Federal Motor Carrier Safety Administration - Form MCS-90 for Motor Carrier Policies of Insurance for Public Liability under Sections 29 and 30 of the Motor Carrier Act of 1980 must be provided as applicable

5.1.5 **Waiver of Subrogation**

(a) All policy(ies) shall be endorsed with or include a waiver of subrogation in favor of the City for all work performed by the Contractor, its employees, agents and subcontractors to the extent of Contractor's liability and indemnity obligations under this Agreement.

5.1.6 **Primary Insurance**

(a) The Commercial General Liability policy shall provide that such policies are primary insurance to any other insurance available to the Additional Insureds, with respect to any claims arising out of this Agreement to the extent of Contractor's liability and indemnity obligations under this Agreement, and that the insurance applies separately to each insured against whom claim is made or suit is brought.

(b) The Commercial Automobile Liability Insurance policy shall provide that such policies are primary insurance to any other insurance available to the Additional Insureds, with respect to any claims arising out of this Agreement to the extent of Contractor's liability and indemnity obligations under this Agreement, and that the insurance applies separately to each insured against whom claim is made or suit is brought.

(c) The Pollution Liability Insurance policy shall provide that such policies are primary insurance to any other insurance available to the Additional Insureds, with respect to any claims arising out of this Agreement to the extent of Contractor's liability and indemnity obligations under this Agreement, and that the insurance applies separately to each insured against whom claim is made or suit is brought.

5.1.7 **Other Insurance Requirements**

(a) Thirty (30) days' advance written notice shall be provided to City of cancellation, intended non-renewal, or reduction in coverages, except for non-payment for which no less than ten (10) days' notice shall be provided to City. Notices shall be sent to the City address set forth in Section 11.1 entitled "Notices to the Parties."

(b) Should any of the required insurance be provided under a claims-made form, Contractor shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of three years beyond the expiration of this Agreement, to the effect that, should occurrences during the Agreement term give rise to claims made after expiration of the Agreement, such claims shall be covered by such claims-made policies.

(c) Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit or provides that claims investigation or legal defense costs be included in such general annual aggregate limit, such general annual aggregate limit shall be double the occurrence or claims limits specified above.

(d) Should any required insurance lapse during the term of this Agreement, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Agreement, effective as of the lapse date. If insurance is not reinstated, the City may, at its sole option, terminate this Agreement effective on the date of such lapse of insurance.

(e) Coverage Limits and Contractor's Liability. The insurance coverage limits stated in Paragraphs (a) through (d) above are minimum insurance coverage requirements, not limits of Contractor's liability. Notwithstanding the above-required insurance policies, Contractor shall be obligated for the full and total amount of any damage, injury, expense or loss.

(f) Should Contractor fail to procure or maintain any of these insurance coverages, or by any act or omission vitiate or invalidate any of the aforesaid insurance coverages, Contractor shall pay to City all losses and indemnify City against all claims and

demands which would otherwise have been covered by such insurance. In the event of Contractor's failure to furnish and maintain any insurance required under this Agreement, City shall have the right but not the obligation to take out and maintain such insurance for and in the name of Contractor and deduct the cost thereof from the Price.

(g) Contractor shall furnish to City certificates of insurance and additional insured policy endorsements with insurers with ratings comparable to A-, VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to City, in form evidencing all coverages set forth above. Approval of the insurance by City shall not relieve or decrease Contractor's liability hereunder.

(h) If Contractor will use any subcontractor(s) to deliver Goods, Contractor shall require the subcontractor(s) to provide all corresponding insurance for their scope of work and to name the City and County of San Francisco, its officers, agents and employees and the Contractor as additional insureds and waive subrogation, as required.

5.2 **Indemnification.**

5.2.1 Contractor shall indemnify and hold harmless City and its officers, agents and employees from, and, if requested, shall defend them from and against any and all claims, demands, losses, damages, costs, expenses, and liability (legal, contractual, or otherwise) arising from or in any way connected with any: (i) injury to or death of a person, including employees of City or Contractor; (ii) loss of or damage to property; (iii) violation of local, state, or federal common law, statute or regulation, including but not limited to privacy or personally identifiable information, health information, disability and labor laws or regulations; (iv) strict liability imposed by any law or regulation; or (v) losses arising from Contractor's execution of subcontracts not in accordance with the requirements of this Agreement applicable to subcontractors; so long as such injury, violation, loss, or strict liability (as set forth in subsections (i) – (v) above) arises directly or indirectly from Contractor's or its subcontractor's, suppliers, agent's and invitee's acts or omissions in the performance of this Agreement, including, but not limited to, Contractor's use of facilities or equipment provided by City or others, regardless of the negligence of, and regardless of whether liability without fault is imposed or sought to be imposed on City, except to the extent that such indemnity is void or otherwise unenforceable under applicable law, and except where such loss, damage, injury, liability or claim is the result of the active negligence or willful misconduct, of City and is not contributed to by any act of, or by any omission to perform some duty imposed by law or agreement on Contractor, its subcontractors, or either's agent or employee. The foregoing indemnity shall include, without limitation, reasonable fees of attorneys, consultants and experts and related costs and City's costs of investigating any claims against the City.

5.2.2 In addition to Contractor's obligation to indemnify City, Contractor specifically acknowledges and agrees that it has an immediate and independent obligation to defend City from any claim which actually or potentially falls within this indemnification provision, even if the allegations are or may be groundless, false or fraudulent, which obligation arises at the time such claim is tendered to Contractor by City and continues at all times thereafter.

5.2.3 Contractor shall indemnify and hold City harmless from all loss and liability, including attorneys' fees, court costs and all other litigation expenses for any infringement of the patent rights, copyright, trade secret or any other proprietary right or

trademark, and all other intellectual property claims of any person or persons arising directly or indirectly from the receipt by City, or any of its officers or agents, of Contractor's delivery of Goods pursuant to this Agreement.

5.3 **Indemnification and Defense Obligations For Design Professionals**. To the extent design professional services are performed under this Agreement, if any, the following indemnity and defense obligations shall apply:

5.3.1 Defense Obligations. To the fullest extent permitted by law, Contractor shall, following a tender of defense from City, assume the immediate defense of (with legal counsel subject to approval of the City), the City, its boards, commissions, officers, and employees (collectively "Indemnitees"), from and against any and all claims, losses, costs, damages, expenses and liabilities of every kind, nature, and description including, without limitation, injury to or death of any person(s) and incidental and consequential damages (collectively "Damages"), court costs, attorneys' fees, litigation expenses, fees of expert consultants or witnesses in litigation, and costs of investigation (collectively "Litigation Expenses"), that arise out of, pertain to, or relate to, directly or indirectly, in whole or in part, the alleged negligence, recklessness, or willful misconduct of Contractor, any subconsultant, anyone directly or indirectly employed by them, or anyone that they control (collectively, "Liabilities"). City will reimburse Contractor for the proportionate percentage of defense costs exceeding Contractor's proportionate percentage of fault as determined by a Court of competent jurisdiction.

5.3.2 Indemnity Obligations. To the fullest extent permitted by law, Contractor shall indemnify and hold harmless Indemnitees from and against any and all Liabilities, including but not limited to those for Damages or Litigation Expenses specified in Section 5.2.1.

5.3.3 Copyright Infringement. Contractor shall also indemnify, defend and hold harmless all Indemnitees from all suits or claims for infringement of the patent rights, copyright, trade secret, trade name, trademark, service mark, or any other proprietary right of any person or persons in consequence of the use by the City, or any of its boards, commissions, officers, or employees of articles, work or deliverables supplied in the performance of Services. Infringement of patent rights, copyrights, or other proprietary rights in the performance of this Agreement, if not the basis for indemnification under the law, shall nevertheless be considered a material breach of contract.

5.3.4 Severability Clause Specific to Indemnification and/or Defense Obligations in Sections 5.2 and 5.3. To the extent any Court of competent jurisdiction or law invalidates any word, clause, phrase, or sentence herein that word, clause, phrase, or sentence, and no other portion, shall be deemed removed from these Sections. All other words, clauses, phrases and/or sentences remain enforceable to the fullest extent permitted by law.

5.3.5 Under no circumstances will City indemnify or hold harmless Contractor.

Article 6 Liability of the Parties

6.1 **Liability of City.** CITY'S PAYMENT OBLIGATIONS UNDER THIS AGREEMENT SHALL BE LIMITED TO THE PAYMENT OF THE COMPENSATION PROVIDED FOR IN SECTION 3.3.1, "CALCULATION OF CHARGES." NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, IN NO EVENT SHALL CITY BE LIABLE, REGARDLESS OF WHETHER ANY CLAIM IS BASED ON

CONTRACT OR TORT, FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR GOODS DELIVERED IN CONNECTION WITH THIS AGREEMENT.

6.2 **Liability for Use of Equipment.** City shall not be liable for any damage to persons or property as a result of the use, misuse or failure of any equipment used by Contractor, or any of its subcontractors, or by any of their employees, even though such equipment is furnished without charge by City.

6.3 **Liability for Incidental and Consequential Damages.** Contractor shall be responsible for incidental and consequential damages resulting in whole or in part from Contractor's acts or omissions, except that Contractor's sole liability to the City for delay in the Delivery Date shall be liquidated damages, as set forth in Section 4.9.2 of this Agreement.

Article 7 Payment of Taxes

7.1 **Contractor to Pay All Taxes.** Except for any applicable California sales and use taxes charged by Contractor to City, Contractor shall pay all taxes, including possessory interest taxes levied upon or as a result of this Agreement, or the Goods delivered pursuant hereto. Contractor shall remit to the State of California any sales or use taxes paid by City to Contractor under this Agreement. Contractor agrees to promptly provide information requested by the City to verify Contractor's compliance with any State requirements for reporting sales and use tax paid by City under this Agreement.

7.2 **Possessory Interest Taxes.** Contractor acknowledges that this Agreement may create a "possessory interest" for property tax purposes. Generally, such a possessory interest is not created unless the Agreement entitles the Contractor to possession, occupancy, or use of City property for private gain. If such a possessory interest is created, then the following shall apply.

7.2.1 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that Contractor, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest.

7.2.2 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a "change in ownership" for purposes of real property taxes, and therefore may result in a revaluation of any possessory interest created by this Agreement. Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the City to the County Assessor the information required by Revenue and Taxation Code section 480.5, as amended from time to time, and any successor provision.

7.2.3 Contractor, on behalf of itself and any permitted successors and assigns, recognizes and understands that other events also may cause a change of ownership of the possessory interest and result in the revaluation of the possessory interest. (see, e.g., Rev. & Tax. Code section 64, as amended from time to time). Contractor accordingly agrees on behalf of itself and its permitted successors and assigns to report any change in ownership to the County Assessor, the State Board of Equalization or other public agency as required by law.

7.2.4 Contractor further agrees to provide such other information as may be requested by the City to enable the City to comply with any reporting requirements for possessory interests that are imposed by applicable law.

7.3 **Withholding.** Contractor agrees that it is obligated to pay all amounts due to the City under the San Francisco Business and Tax Regulations Code during the term of this Agreement. Pursuant to Section 6.10-2 of the San Francisco Business and Tax Regulations Code, Contractor further acknowledges and agrees that City may withhold any payments due to Contractor under this Agreement if Contractor is delinquent in the payment of any amount required to be paid to the City under the San Francisco Business and Tax Regulations Code. Any payments withheld under this paragraph shall be made to Contractor, without interest, upon Contractor coming back into compliance with its obligations.

Article 8 Termination and Default

8.1 Termination for Convenience

8.1.1 City shall have the option, in its sole discretion, to terminate all or part of this Agreement, at any time during the term hereof, for convenience and without cause. City shall exercise this option by giving Contractor written notice of termination ("Notice of Termination"). The Notice of Termination shall specify the date on which termination of the Agreement shall become effective ("Termination Date").

(i) If (1) prior to making any progress payments, Contractor and its subcontractors performing a portion of the Work are unable to reach a mutually agreeable contract after receiving NTP from the City, including without limitation one that incorporates that schedule City and Contractor each require or (2) within five (5) business days after the City approves the final design from Contractor's design subcontractor, Contractor's vessel fabrication subcontractor notifies Contractor that it will not have sufficient time to complete fabrication of the Vessel, leaving sufficient time for Contractor to subsequently install the crane and deliver the Vessel to the City by the Delivery Date, Contractor shall so notify City and if City chooses to not issue a change order extending the Delivery Date as necessary, City's sole remedy shall be to terminate this Agreement for convenience in accordance with this Section 8.1.

8.1.2 Upon receipt of the Notice of Termination, Contractor shall commence and perform, with diligence, all actions necessary on the part of Contractor to affect the termination of this Agreement on the Termination Date and to minimize the liability of Contractor and City to third parties as a result of the termination. All such actions shall be subject to the prior approval of City. Such actions may include any or all of the following, without limitation:

(a) Completing performance of any Services and delivery of any Goods that City requires Contractor to complete prior to the Termination Date.

(b) Halting the performance of all Services on and after the Termination Date and halting the delivery of all Goods on and after the Termination Date unless such Goods were ordered prior to the Termination Date.

(c) Cancelling all existing orders and subcontracts by the Termination Date, and not placing any further orders or subcontracts for materials, Services, equipment or other items.

(d) At City's direction, assigning to City any or all of Contractor's right, title, and interest under the orders and subcontracts cancelled. Upon such assignment, City shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the cancellation of such orders and subcontracts.

(e) Subject to City's approval, settling all outstanding liabilities and all claims arising out of the cancelled orders and subcontracts.

(f) Taking such action as may be necessary, or as the City may direct, for the protection and preservation of any property related to this Agreement which is in the possession of Contractor and in which City has or may acquire an interest.

8.1.3 Upon termination by the City, within thirty (30) days after the Termination Date, Contractor shall submit to City an invoice, which shall set forth each of the following as a separate line item:

(a) The cost to Contractor, without profit, for all Services provided, and all Goods ordered from Contractor's subcontractors and suppliers prior to the Termination Date, as well as termination costs.

(b) If payment for Services provided prior to the Termination Date is not identified in Appendix C and/or is indivisible from the completed Services identified, then the reasonable cost to Contractor, without profit, for all Services provided prior to the Termination Date, for which City has not already made payment. Reasonable costs may include a reasonable allowance for actual overhead, not to exceed a total of ten percent (10%) of Contractor's direct costs for Services. Any overhead allowance shall be separately itemized. Contractor may also recover the reasonable cost of preparing the invoice.

(c) A reasonable allowance for profit on the cost of the Services described in the immediately preceding subsections (a) and (b), provided that Contractor can establish, to the satisfaction of City, that Contractor would have made a profit had all Services under this Agreement been completed, and provided further, that the profit allowed shall in no event exceed ten percent (10%) of such cost.

(d) The reasonable cost to Contractor of handling and returning material or equipment delivered to City or otherwise disposed of as directed by City.

(e) A deduction for the cost of materials to be retained by Contractor, amounts realized from the sale of such materials and not otherwise recovered by or credited to City, and any other appropriate credits to City against the cost of the Services or other work.

8.1.4 In no event shall City be liable for costs incurred by Contractor or any of its subcontractors after the Termination Date, except for those costs specifically listed in Section 8.1.3. Such non-recoverable costs include, but are not limited to, anticipated profits on the Services under this Agreement, post-termination employee salaries, post-termination administrative expenses, post-termination overhead or unabsorbed overhead, attorneys' fees or other costs relating to the prosecution of a claim or lawsuit, prejudgment interest, or any other expense which is not reasonable or authorized under Section 8.1.3.

8.1.5 In arriving at the amount due to Contractor under this Section, City may deduct: (i) all payments previously made by City for Services covered by Contractor's final invoice; (ii) any claim which City may have against Contractor in connection with this

Agreement; (iii) any invoiced costs or expenses excluded pursuant to the immediately preceding subsection 8.1.4; and (iv) in instances in which, in the opinion of City, the cost of any Service performed under this Agreement is excessively high due to costs incurred to remedy or replace defective or rejected Services, the difference between the invoiced amount and City's estimate of the reasonable cost of performing the invoiced Services in compliance with the requirements of this Agreement.

8.1.6 City's payment obligation under this Section shall survive termination of this Agreement

8.2 **Termination for Default; Remedies.**

8.2.1 Each of the following shall constitute an immediate event of default ("Event of Default") under this Agreement:

(a)Contractor fails or refuses to perform or observe any term, covenant or condition contained in any of the following Sections of this Agreement:

3.5	Submitting False Claims.	10.10	Alcohol and Drug-Free Workplace
4.6	Assignment	10.13	Reserved (Working with Minors).
Article 5	Insurance and Indemnity	11.10	Compliance with Laws
Article 7	Payment of Taxes	Article 13	Data and Security

(b) Contractor fails or refuses to perform or observe any other material term, covenant or condition contained in this Agreement, including any obligation imposed by ordinance or statute and incorporated by reference herein, and such default is not cured within ten days after written notice thereof from City to Contractor. If Contractor defaults a second time in the same manner as a prior default cured by Contractor, City may in its sole discretion immediately terminate the Agreement for default or grant an additional period not to exceed five days for Contractor to cure the default.

(c) Contractor (i) is generally not paying its debts as they become due; (ii) files, or consents by answer or otherwise to the filing against it of a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction; (iii) makes an assignment for the benefit of its creditors; (iv) consents to the appointment of a custodian, receiver, trustee or other officer with similar powers of Contractor or of any substantial part of Contractor's property; or (v) takes action for the purpose of any of the foregoing.

(d) A court or government authority enters an order (i) appointing a custodian, receiver, trustee or other officer with similar powers with respect to Contractor or with respect to any substantial part of Contractor's property; (ii) constituting an order for relief or approving a petition for relief, reorganization or arrangement; or any other petition in bankruptcy or for liquidation, or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction; or (iii) ordering the dissolution, winding-up or liquidation of Contractor.

8.2.2 **Default Remedies.** On and after any Event of Default, City shall have the right to exercise its legal and equitable remedies, including, without limitation, the right to terminate this Agreement or to seek specific performance of all or any part of this Agreement. In

addition, where applicable, City shall have the right (but no obligation) to cure (or cause to be cured) on behalf of Contractor any Event of Default; Contractor shall pay to City on demand all costs and expenses incurred by City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law, not to exceed 18% per annum. City shall have the right to offset from any amounts due to Contractor under this Agreement or any other agreement between City and Contractor: (i) all damages, losses, costs or expenses incurred by City and recoverable pursuant to the terms of this Agreement as a result of an Event of Default; and (ii) any liquidated damages levied upon Contractor pursuant to the terms of this Agreement; and (iii), any damages imposed by any ordinance or statute that is incorporated into this Agreement by reference, or into any other agreement with City.

8.2.3 All remedies provided for in this Agreement may be exercised individually or in combination with any other remedy available hereunder or under applicable laws, rules and regulations. The exercise of any remedy shall not preclude or in any way be deemed to waive any other remedy. Nothing in this Agreement shall constitute a waiver or limitation of any rights that City may have under applicable law. Notwithstanding the foregoing, in the event that Contractor fails to deliver the Vessel on the Delivery Date, Contractor's sole liability for such delay shall be liquidated damages, as set forth in Section 4.9.2 of this Agreement.

8.2.4 Any notice of default must be sent in accordance with Article 11.

8.3 **Non-Waiver of Rights.** The omission by either Party at any time to enforce any default or right reserved to it, or to require performance of any of the terms, covenants, or provisions hereof by the other Party at the time designated, shall not be a waiver of any such default or right to which the Party is entitled, nor shall it in any way affect the right of the Party to enforce such provisions thereafter.

8.4 **Rights and Duties upon Termination or Expiration.**

8.4.1 This Section and the following Sections of this Agreement listed below, shall survive termination or expiration of this Agreement:

3.3.2	Payment Limited to Satisfactory Delivery of Goods		9.2	Works for Hire
3.3.7	Grant Funded Contracts		11.6	Dispute Resolution Procedure
3.4	Audit and Inspection of Records		11.7	Agreement Made in California; Venue
3.5	Submitting False Claims		11.8	Construction
Article 5	Insurance and Indemnity		11.9	Entire Agreement
6.1	Liability of City		11.10	Compliance with Laws
6.3	Liability for Incidental and Consequential Damages		11.11	Severability
Article 7	Payment of Taxes		Article 12	Department Specific Terms

Article 8	Termination and Default		Article 13	Data and Security
9.1	Ownership of Results			

8.4.2 Subject to the survival of the Sections identified in Section 8.4.1, above, if this Agreement is terminated prior to expiration of the term specified in Article 2, this Agreement shall be of no further force or effect. Contractor shall transfer title to City, and deliver in the manner, at the times, and to the extent, if any, directed by City, any work in progress, completed work, supplies, equipment, and other materials produced as a part of, or acquired in connection with the performance of this Agreement, and any completed or partially completed work which, if this Agreement had been completed, would have been required to be furnished to City.

Article 9 Rights In Deliverables

9.1 **Ownership of Results.** Any interest of Contractor or its subcontractors in the Deliverables, any partially-completed Deliverables, and related materials, shall become the property of and will be transmitted to City. Contractor may retain a copy for its records.

9.2 **Works for Hire.** All copyrights in Deliverables that are considered works for hire under Title 17 of the United States Code, shall be the property of City. If any such Deliverables are ever determined not to be works for hire under federal law, Contractor hereby assigns all Contractor's copyrights to such Deliverables to City, agrees to provide any material and execute any documents necessary to effectuate such assignment, and agrees to include a clause in every subcontract imposing the same duties upon its subcontractors. With City's prior written approval, Contractor and its subcontractors may retain and use copies of such works for reference and as documentation of their respective experience and capabilities provided that any such use is in conformance with the confidentiality provisions of this Agreement.

Article 10 Additional Requirements Incorporated by Reference

10.1 **Laws Incorporated by Reference.** The full text of the laws listed in this Article 10, including enforcement and penalty provisions, are incorporated by reference into this Agreement. The full text of the San Francisco Municipal Code provisions incorporated by reference in this Article and elsewhere in the Agreement ("Mandatory City Requirements") are available at http://www.amlegal.com/codes/client/san-francisco_ca/.

10.2 **Conflict of Interest.** By executing this Agreement, Contractor certifies that it does not know of any fact which constitutes a violation of Section 15.103 of the City's Charter; Article III, Chapter 2 of City's Campaign and Governmental Conduct Code; Title 9, Chapter 7 of the California Government Code (Section 87100 *et seq.*), or Title 1, Division 4, Chapter 1, Article 4 of the California Government Code (Section 1090 *et seq.*), and further agrees promptly to notify the City if it becomes aware of any such fact during the term of this Agreement.

10.3 **Prohibition on Use of Public Funds for Political Activity.** In delivering the Services and Goods, Contractor shall comply with San Francisco Administrative Code Chapter 12G, which prohibits funds appropriated by City for this Agreement from being expended to participate in, support, or attempt to influence any political campaign for a candidate or for a ballot measure. Contractor is subject to the enforcement and penalty provisions in Chapter 12G.

10.4 **Consideration of Salary History.** Contractor shall comply with San Francisco Labor and Employment Code Article 141, the Consideration of Salary History Ordinance or "Pay Parity Act." Contractor is prohibited from considering current or past salary of an applicant in determining whether to hire the applicant or what salary to offer the applicant to the extent that such applicant is applying for employment to be performed on this Agreement or in furtherance of this Agreement, and whose application, in whole or part, will be solicited, received, processed or considered, whether or not through an interview, in City or on City property. The ordinance also prohibits employers from (1) asking such applicants about their current or past salary or (2) disclosing a current or former employee's salary history without that employee's authorization unless the salary history is publicly available. Contractor is subject to the enforcement and penalty provisions in Article 141. Information about and the text of Article 141 is available on the web at https://sfgov.org/olse/consideration-salary-history. Contractor is required to comply with all of the applicable provisions of Article 141, irrespective of the listing of obligations in this Section.

10.5 **Nondiscrimination Requirements**

10.5.1 Contractor shall comply with the provisions of San Francisco Labor and Employment Code Articles 131 and 132. Contractor shall incorporate by reference in all subcontracts the provisions of Sections 131.2(a), 131.2(c)-(k), and 132.3 of the San Francisco Labor and Employment Code and shall require all subcontractors to comply with such provisions. Contractor is subject to the enforcement and penalty provisions in Articles 131 and 132.

10.5.2 San Francisco Labor and Employment Code Article 131.2 applies to this Agreement. Contractor does not as of the date of this Agreement, and will not during the term of this Agreement, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for City elsewhere in the United States, discriminate in the provision of employee benefits between employees with domestic partners and employees with spouses and/or between the domestic partners and spouses of such employees, subject to the conditions set forth in San Francisco Labor and Employment Code Article 131.2.

10.6 **Reserved (Local Business Enterprise and Non-Discrimination in Contracting Ordinance.)** There is no Local Business Enterprise requirement for this Work.

10.7 **Reserved (Minimum Compensation Ordinance).**

10.8 **Reserved (Health Care Accountability Ordinance).**

10.9 **First Source Hiring Program.** Contractor must comply with all of the provisions of the First Source Hiring Program, Chapter 83 of the San Francisco Administrative Code, that applies to this Agreement, and Contractor is subject to the enforcement and penalty provisions in Chapter 83.

10.10 **Alcohol and Drug-Free Workplace.** City reserves the right to deny access to, or require Contractor to remove from, City facilities personnel of any Contractor or subcontractor who City has reasonable grounds to believe has engaged in alcohol abuse or illegal drug activity which in any way impairs City's ability to maintain safe work facilities or to protect the health and well-being of City employees and the general public. City shall have the right of final approval for the entry or re-entry of any such person previously denied access to, or removed

from, City facilities. Illegal drug activity means possessing, furnishing, selling, offering, purchasing, using or being under the influence of illegal drugs or other controlled substances for which the individual lacks a valid prescription. Alcohol abuse means possessing, furnishing, selling, offering, or using alcoholic beverages, or being under the influence of alcohol.

Contractor agrees in the performance of this Agreement to maintain a drug-free workplace by notifying employees that unlawful drug use is prohibited and specifying what actions will be taken against employees for violations; establishing an on-going drug-free awareness program that includes employee notification and, as appropriate, rehabilitation. Contractor can comply with this requirement by implementing a drug-free workplace program that complies with the California Drug-Free Workplace Act of 1990 Cal. Gov. Code, § 8350 et seq.

10.11 **Limitations on Contributions.** By executing this Agreement, Contractor acknowledges its obligations under Section 1.126 of the City's Campaign and Governmental Conduct Code, which prohibits any person who contracts with, or is seeking a contract with, any department of the City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, for a grant, loan or loan guarantee, or for a development agreement, from making any campaign contribution to (i) a City elected official if the contract must be approved by that official, a board on which that official serves, or the board of a state agency on which an appointee of that official serves, (ii) a candidate for that City elective office, or (iii) a committee controlled by such elected official or a candidate for that office, at any time from the submission of a proposal for the contract until the later of either the termination of negotiations for such contract or twelve months after the date the City approves the contract. The prohibition on contributions applies to each prospective party to the contract; each member of Contractor's board of directors; Contractor's chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than 10% in Contractor; any subcontractor listed in the bid, proposal or contract; and any committee that is sponsored or controlled by Contractor. Contractor certifies that it has informed each such person of the limitation on contributions imposed by Section 1.126 by the time it submitted a proposal for the contract, and has provided the names of the persons required to be informed to the City department with whom it is contracting.

10.12 **Reserved (Slavery Era Disclosure).**

10.13 **Reserved (Working with Minors).**

10.14 **Consideration of Criminal History in Hiring and Employment Decisions.**

10.14.1 Contractor agrees to comply fully with and be bound by all of the provisions of Article 142, "City Contractor/Subcontractor Consideration of Criminal History in Hiring and Employment Decisions," of the San Francisco Labor and Employment Code ("Article 142"), including the remedies provided, and implementing regulations, as may be amended from time to time. The provisions of Article 142 are incorporated by reference and made a part of this Agreement as though fully set forth herein. The text of Article 142 is available on the web at http://sfgov.org/olse/fco. Contractor is required to comply with all of the applicable provisions of Article 142, irrespective of the listing of obligations in this Section. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Article 142.

10.14.2 The requirements of Article 142 shall only apply to a Contractor's or Subcontractor's operations to the extent those operations are in furtherance of the performance of this Agreement, shall apply only to applicants and employees who would be or are performing work in furtherance of this Agreement, and shall apply when the physical location of the employment or prospective employment of an individual is wholly or substantially within the City of San Francisco. Article 142 shall not apply when the application in a particular context would conflict with federal or state law or with a requirement of a government agency implementing federal or state law.

10.15 **Reserved (Public Access to Nonprofit Records and Meetings).**

10.16 **Food Service Waste Reduction Requirements.** Contractor shall comply with the Food Service Waste Reduction Ordinance, as set forth in San Francisco Environment Code Chapter 16, including but not limited to the remedies for noncompliance provided therein.

10.17 **Reserved (Distribution of Beverages and Water).**

10.18 **Tropical Hardwood and Virgin Redwood Ban.** Pursuant to San Francisco Environment Code Section 804(b), the City urges Contractor not to import, purchase, obtain, or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product.

10.19 **Reserved (Preservative Treated Wood Products).**

10.20 **Reserved (Sweat Free Procurement)**.

10.21 **Environment Code Chapter 5, Resource Conservation Ordinance.**

10.21.1 **Reserved** (**Printing Services and/or Writing Paper Products).**

10.21.2 **Reserved (Collection of Recyclable Materials).**

10.22 **Reserved (Prop J Approval).**

10.23 **Use of City Opinion.** Contractor shall not quote, paraphrase, or otherwise refer to or use any opinion of City, its officers or agents, regarding Contractor or Contractor's performance under this Agreement without prior written permission of Purchasing.

Article 11 General Provisions

11.1 **Notices to the Parties.** Unless otherwise indicated in this Agreement, all written communications sent by the Parties may be by U.S. mail or e-mail, and shall be addressed as follows:

To City:	Director of Purchasing City and County of San Francisco Office of Contract Administration Purchasing Division City Hall, Room 430 1 Dr. Carlton B. Goodlett Place San Francisco, CA 94102-4685 Email: OCA@sfgov.org Phone: (415) 554-6743 Fax: (415) 554-6717

To Contractor:	Name Bryan O'Sullivan Title VP of Construction Company The Dutra Group Address 2350 Kerner Blvd. Suite 200, San Rafael, CA 94901 Email bosullivan@dutragroup.com Phone 415-258-6876

Any notice of default must be sent by registered mail or other trackable overnight mail. Either Party may change the address to which notice is to be sent by giving written notice thereof to the other Party. If email notification is used, the sender must specify a receipt notice.

11.2 **Compliance with Laws Requiring Access for People with Disabilities.**

11.2.1 Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to people with disabilities. Contractor shall provide the services specified in this Agreement in a manner that complies with the ADA and all other applicable federal, state and local disability rights legislation. Contractor agrees not to discriminate against people with disabilities in the provision of services, benefits or activities provided under this Agreement and further agrees that any violation of this prohibition on the part of Contractor, its employees, agents or assigns will constitute a material breach of this Agreement.

11.2.2 Contractor shall adhere to the requirements of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. Sec. 1201 et seq.), Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Sec. 794d), Section 255 of the Communications Act Guidelines, the applicable Revised Section 508 Standards, and Web Content Accessibility Guidelines 2.1, Level AA, as amended from time to time. Contractor shall ensure that all information content and technology provided under this Agreement fully conforms to the applicable Revised 508 Standard, as amended from time to time, prior to delivery and before the City's final acceptance of the Services and/or Deliverables.

11.3 **Incorporation of Recitals.** The matters recited above are hereby incorporated into and made part of this Agreement.

11.4 **Sunshine Ordinance.** Contractor acknowledges that this Agreement and all records related to its formation, Contractor's delivery of Services and Goods, and City's payment are subject to the California Public Records Act, (California Government Code §7920 et seq.), and the San Francisco Sunshine Ordinance, (San Francisco Administrative Code Chapter 67). Such records are subject to public inspection and copying unless exempt from disclosure under federal, state or local law.

11.5 **Modification of this Agreement.** This Agreement may not be modified, nor may compliance with any of its terms be waived, except by written instrument executed and approved in the same manner as this Agreement.

11.5.1 **Change Orders.** For changes requested related to any portions of the Work performed by Conrad, the Parties will follow the procedures set forth in this Section 11.5.1 and Appendix F (Change Orders) . For such requests, in the event of conflict between the terms

in Section 11.5.1(a)-(d) and the terms in Appendix F, the former shall control. For all other changes, the Parties shall follow the provisions set forth in Appendix F only.

(a) City reserves the right to request any changes to the Work upon giving due notice in writing to Contractor. Any adjustments to the Agreement price or the Delivery Date due to such requested changes (which increases shall include any increases to the Builder's Risk insurance premium due to an increase in the Work or an extension of the time required for the performance of the Work) shall be agreed upon in writing in the form of a Change Order mutually agreeable to both parties. Each approved Change Order shall be signed by both parties.

(b) No change shall be made to the Work unless the parties have mutually agreed to such change and an appropriate Change Order has been agreed to and executed by the parties as provided herein.

(c) If any such change results in an increase in the Agreement price, City shall pay the full amount of such increase to Contractor within fifteen (15) days from the date the Change Order work is completed and invoiced, provided City confirms the work has been performed (such confirmation not to be unreasonably delayed or denied). If any such change results in a decrease in the Agreement Price, Contractor shall issue a credit to City within thirty (30) days from the of a signed Change Order, which amount shall be applied to City's final payment due upon completion of the Work.

(d) If any changes in the applicable classification societies' rules or in the applicable rules of any governmental agency that are applicable to the Work, including without limitation the Vessel, ("Law") are made subsequent to the date of this Agreement whereby the cost of the Vessel is increased and/or the time required for completion is extended, a written Change Order shall be prepared to evidence such change. Contractor shall have no obligation to comply with such change in Law unless and until City has issued a Change Order therefor.

11.6 **Dispute Resolution Procedure.**

11.6.1 **Negotiation; Alternative Dispute Resolution.** The Parties will attempt in good faith to resolve any dispute or controversy arising out of or relating to the delivery of Services and Goods under this Agreement. Disputes will not be subject to binding arbitration. The status of any dispute or controversy notwithstanding, Contractor shall proceed diligently with the performance of its obligations under this Agreement in accordance with the Agreement and the written directions of City. Neither Party will be entitled to legal fees or costs for matters resolved under this Section.

11.6.2 **Government Code Claim Requirement.** No suit for money or damages may be brought against City until a written claim therefor has been presented to and rejected by City in conformity with the provisions of San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq. Nothing set forth in this Agreement shall operate to toll, waive or excuse Contractor's compliance with the California Government Code Claim requirements set forth in San Francisco Administrative Code Chapter 10 and California Government Code Section 900, et seq.

11.6.3 **Reserved (Health and Human Service Contract Dispute Resolution Procedure).**

11.7 **Agreement Made in California; Venue.** The formation, interpretation and performance of this Agreement shall be governed by the laws of the State of California. Venue

for all litigation relative to the formation, interpretation and performance of this Agreement shall be in San Francisco.

11.8 **Construction.** All paragraph captions are for reference only and shall not be considered in construing this Agreement.

11.9 **Entire Agreement.** This Contract Documents set forth the entire Agreement between the Parties, and supersedes all other oral or written provisions. This Agreement may be modified only as provided in Section 11.5, "Modification of this Agreement."

11.10 **Compliance with Laws.** Contractor shall keep itself fully informed of the City's Charter, codes, ordinances and duly adopted rules and regulations of the City and of all state, and federal laws in any manner affecting the performance of this Agreement, and must at all times comply with such local codes, ordinances, and regulations and all applicable laws as they may be amended from time to time. If any changes to the laws after the Effective Date of this Agreement increase or decrease the cost or time for performance of the Work, the parties shall execute a Change Order providing for such changes.

11.11 **Severability.** Should the application of any provision of this Agreement to any particular facts or circumstances be found by a court of competent jurisdiction to be invalid or unenforceable, then (i) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (ii) such provision shall be enforced to the maximum extent possible so as to effect the intent of the Parties and shall be reformed without further action by the Parties to the extent necessary to make such provision valid and enforceable.

11.12 **Cooperative Drafting.** This Agreement has been drafted through a cooperative effort of City and Contractor, and both Parties have had an opportunity to have the Agreement reviewed and revised by legal counsel. No Party shall be considered the drafter of this Agreement, and no presumption or rule that an ambiguity shall be construed against the Party drafting the clause shall apply to the interpretation or enforcement of this Agreement.

11.13 **Order of Precedence.** The Parties agree that this Agreement, including all appendices, sets forth the Parties' complete agreement. If the Appendices to this Agreement include any standard printed terms from Contractor, Contractor agrees that in the event of discrepancy, inconsistency, gap, ambiguity, or conflicting language between City's terms and Contractor's printed terms attached, City's terms in this Agreement shall take precedence, followed by the procurement issued by the department (if any), Contractor's proposal, and Contractor's printed terms, respectively. Any hyperlinked terms included in Contractor's terms shall have no legal effect.

11.14 **Notification of Legal Requests.** Contractor shall immediately notify City upon receipt of any subpoenas, service of process, litigation holds, discovery requests and other legal requests ("Legal Requests") related to all data given to Contractor by City in the performance of this Agreement ("City Data" or "Data"), or which in any way might reasonably require access to City's Data, and in no event later than 24 hours after it receives the request. Contractor shall not respond to Legal Requests related to City without first notifying City other than to notify the requestor that the information sought is potentially covered under a non-disclosure agreement. Contractor shall retain and preserve City Data in accordance with the City's instruction and requests, including, without limitation, any retention schedules and/or litigation hold orders provided by the City to Contractor, independent of where the City Data is stored.

Article 12 Department Specific Terms

12.1 Third Party Beneficiaries.

No third parties are intended by the Parties hereto to be third party beneficiaries under this Agreement, and no action to enforce the terms of this Agreement may be brought against either Party by any person who is not a party hereto.

12.2 Reserved (Exclusion Lists and Employee Verification).

Article 13 Data and Security

13.1 Nondisclosure of Private, Proprietary or Confidential Information.

13.1.1 If this Agreement requires City to disclose "Private Information" to Contractor within the meaning of San Francisco Administrative Code Chapter 12M, Contractor and subcontractor shall use such information only in accordance with the restrictions stated in Chapter 12M and in this Agreement and only as necessary in delivering the Services and Goods. Contractor is subject to the enforcement and penalty provisions in Chapter 12M.

13.1.2 **City Data; Confidential Information.** In the delivery of the Services and Goods, Contractor may have access to, or collect on City's behalf, City Data, which may include proprietary or Confidential Information that if disclosed to third parties may damage City. If City discloses proprietary or Confidential Information to Contractor, or Contractor collects such information on City's behalf, such information must be held by Contractor in confidence and used only in performing the Agreement. Contractor shall exercise the same standard of care to protect such information as a reasonably prudent contractor would use to protect its own proprietary or Confidential Information.

13.2 Reserved (Payment Card Industry ("PCI") Requirements).

13.3 Reserved (Business Associate Agreement).

13.4 Management of City Data and Confidential Information

13.4.1 **Use of City Data and Confidential Information.** Contractor agrees to hold City Data received from, or created or collected on behalf of, City, in strictest confidence. Contractor shall not use or disclose City Data except as permitted or required by the Agreement or as otherwise authorized in writing by City. Any work by Contractor or its authorized subcontractors using, or sharing or storage of, City Data outside the United States is prohibited, absent prior written authorization by City. Access to City Data must be strictly controlled and limited to Contractor's staff assigned to this project on a need-to-know basis only. City Data shall not be distributed, repurposed or shared across other applications, environments, or business units of Contractor. Contractor is provided a limited non-exclusive license to use City Data solely for performing its obligations under the Agreement and not for Contractor's own purposes or later use. Nothing herein shall be construed to confer any license or right to the City Data, by implication, estoppel or otherwise, under copyright or other intellectual property rights, to any third-party. Unauthorized use of City Data by Contractor, subcontractors or other third-parties is prohibited. For purpose of this requirement, the phrase "unauthorized use" means the data mining or processing of data and/or machine learning from the data, stored or transmitted by the service, for unrelated commercial purposes, advertising or advertising-related purposes, or for any purpose that is not explicitly authorized other than security or service delivery analysis.

13.4.2 **Disposition of City Data**. Upon request of City or termination or expiration of this Agreement, Contractor shall promptly, but in no event later than thirty (30) calendar days, return all City Data given to, or collected or created by Contractor on City's behalf, which includes all original media. Once Contractor has received written confirmation from City that City Data has been successfully transferred to City, Contractor shall within ten (10) business days clear or purge all City Data from its servers, any hosted environment Contractor has used in performance of this Agreement, including its subcontractor's environment(s), work stations that were used to process the data or for production of the data, and any other work files stored by Contractor in whatever medium, though Contractor may retain one copy for its records. Contractor shall provide City with written certification that such purge occurred within five (5) business days of the purge. Secure disposal shall be accomplished by "clearing," "purging" or "physical destruction," in accordance with National Institute of Standards and Technology (NIST) Special Publication 800-88 or most current industry standard.

13.4.3 **Protected Health Information.** Where applicable, Contractor, all subcontractors, all agents and employees of Contractor and any subcontractor shall comply with all federal and state laws regarding the transmission, storage and protection of all private health information, if any, disclosed to Contractor by City in the performance of this Agreement. Contractor agrees that any failure of Contractor to comply with the requirements of federal and/or state and/or local privacy laws shall be a material breach of the Agreement. In the event that City pays a regulatory fine, and/or is assessed civil penalties or damages through private rights of action, based on an impermissible use or disclosure of protected health information given to Contractor or its subcontractors or agents by City, Contractor shall indemnify City for the amount of such fine or penalties or damages, including costs of notification. In such an event, in addition to any other remedies available to it under equity or law, the City may terminate the Agreement.

13.5 **Ownership of City Data.** The Parties agree that as between them, all rights, including all intellectual property rights, in and to the City Data and any derivative works of the City Data is the exclusive property of the City.

Article 14 MacBride And Signature

14.1 MacBride Principles -Northern Ireland.

The provisions of San Francisco Administrative Code §12F are incorporated herein by this reference and made part of this Agreement. By signing this Agreement, Contractor confirms that Contractor has read and understood that the City urges companies doing business in Northern Ireland to resolve employment inequities and to abide by the MacBride Principles, and urges San Francisco companies to do business with corporations that abide by the MacBride Principles.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement on the day first mentioned above.

CITY

Recommended by:

Shawn Peeters
Procurement Manager
Office of Contract Administration

Approved as to Form:

David Chiu
City Attorney

By: _____
Richard Ellis Robinson
Deputy City Attorney

Approved:

_____
Sailaja Kurella
Director of the Office of Contract Administration,
and Purchaser

CONTRACTOR

The Dutra Group

Harry K. Stewart
President and CEO
2350 Kerner Blvd. Suite 200
San Rafael, CA 94901

City Supplier Number: **0000009744**

Appendices:

A:	Scope of Work
B:	Calculation of Charges
C:	Progress Payment, Delivery, and Compliance Requirements
D:	Design Specifications and Construction Drawings
E:	Schedule
F:	Change Orders and Claims

Appendix A

Scope of Work and Specifications

Summary Scope of Work – Crane Barge

Project Summary

This Agreement is for the purchase a crane barge to perform maintenance and repair works of marine structures along the City of San Francisco waterfront. Primarily the Port of San Francisco needs the ability to handle and drive piles at existing piers, but the design set forth in this Appendix A has the capability to support some new construction as well. The barge shall be for ocean passage, of rectangular shape with square stern and partially raked bow. The pedestal will support a fully rotating pedestal crane for construction works. The crane barge shall be delivered by December 1, 2026 and accepted per the Contract Documents by February 1, 2027.

The crane barge will operate inside San Francisco Bay year-round, primarily during daytime under relatively calm conditions. The crane will be a permanently mounted pedestal type crane, for reasons of reach and capacity, reliability, readily available service and parts, and availability of the crane itself.

Description of Barge

The barge hull shall be fabricated of steel plate, longitudinally stiffened, with the internal volume subdivided by both longitudinal and transverse watertight bulkheads. Several of the internal compartments will function as ballast tanks (treated fresh water) but the remainder shall be voids. The barge will support a pedestal mounted crane that can rotate 360 degrees and lift loads at any orientation. The primary working radius of the crane is 60 ft from the centerline of the crane at which radius it must be able to lift a 60,000 lb load.

Part of the crane pedestal will be provided with the crane and part will be built into the hull structure, with the joining butt weld made during installation of the crane.

Spud piles and mooring lines will be the primary means of positioning/mooring the barge at work locations alongside existing piers.

The barge will be outfitted with the following vendor-supplied equipment:

1. Diesel powered electrical generator
2. Shore power receiving station
3. Diesel powered hydraulic power unit
4. Hydraulic powered winches for lifting spud piles
5. Powered tugger winches
6. Electric-powered air compressor with air receiver

All equipment and associated piping, electrical, and foundation structure shall be procured, installed, and tested in accordance with the project specifications.

Various outfitting including deckhouses for enclosing and securing the equipment and tools on board shall be designed by the Contractor, constructed, and installed onboard. Other outfitting includes foundations for equipment to be installed, pipe supports for deck piping and protective structures, control/operator stations for the spud pile and tugger winches, boom rest for the crane boom and foundations for the mooring fittings, fendering and other appurtenances as defined in the project specifications and drawings.

Licenses and Permits

All necessary permits and licenses required to perform the type of Work required by the Contract Documents are to be supplied by the Contractor and/or its subcontractors and suppliers at no additional cost to the City. The City shall obtain all permits and licenses necessary to receive delivery of and operate the Vessel.

Security Interest

Contractor grants to City a first priority purchase money security interest in all of Contractor's right, title and interest in and to the following, whether now owned or hereafter acquired, but solely to the extent of payments actually made by City to Contractor under this Agreement:

1) The Vessel construction project being undertaken pursuant to this Agreement, as amended from time to time, the Vessel, and all equipment, outfit and appurtenances, including all accessions and additions thereto, and all parts, equipment and materials specifically identified for permanent installation on the Vessel wherever located, whether on board the Vessel or not, all of which the parties acknowledge constitute "purchase-money collateral" as such term is defined in Section 9-103(a)(1) of the Uniform Commercial Code;

2) this Agreement, as amended from time to time, solely to the extent assignable and to the extent necessary to enforce City's rights and remedies with respect to the Vessel and the collateral described above; and

3) all proceeds of the foregoing, including insurance proceeds.

The foregoing security interest secures the performance of all obligations of Contractor outstanding from time to time under this Agreement and all other agreements, instruments and documents relating thereto, now or hereafter in effect as amended from time to time, but only to the extent of City's funded interest in the collateral (collectively, the "Obligations"). The parties acknowledge that the Obligations constitute a "purchase money obligation" as such term is defined in Section 9-103(a)(2) of the Uniform Commercial Code. Contractor expressly authorizes City to file such U.C.C-1 financing statements as City may deem necessary to perfect and continue City's security interest in the aforementioned collateral. From time to time at City's request Contractor shall execute and deliver all further instruments and documents and take all further action as may be reasonably necessary to perfect and provide first priority for any security interest granted or purported to be granted in this Agreement or to enable City to exercise and enforce its rights and remedies with respect to the aforementioned collateral. Contractor shall not register the Vessel under the vessel registration or titling laws of the United States or any state, or document the Vessel with the USCG, except as may be required during the construction or the delivery of the Vessel. The security interest granted to City hereunder is inferior only to Contractor 's lien rights in the Vessel in the event of default by City, which lien rights are acknowledged by City.

Design Specifications and Contract Drawings

Refer to Appendix D to find the following Design Specifications and Contract Drawings.

Design Specifications and Contract Drawings may be modified by mutual agreement of the Parties to be documented via written Change Order to this Agreement:

Exhibit A-0	Specifications
Exhibit A-1:	General Arrangement
Exhibit A-2:	Structural Scantling Plan
Exhibit A-3:	Spud Pile
Exhibit A-4:	Outfitting
Exhibit A-5:	Mechanical Arrangement
Exhibit A-6:	Electrical One-Line Diagram

Regulatory Oversight

The barge is designed in accordance with the American Bureau of Shipping Rules for Building and Classing Steel Barges, and as such shall be built for ocean transport. The barge shall be built in accordance with these rules including the purchase of materials, workmanship, and welding consumables and procedures but will not be classed by ABS. Because the barge will be owned and operated by a municipal entity, it will be uninspected by the USCG.

Scope of Work

The Contractor shall deliver a crane barge by December 1, 2026 that meets the specifications of the Port and that the Port accepts as meeting Exhibit A-0 - Specifications on or before February 1, 2027, at which time all aspects of fabrication, inspection, supply of equipment and testing of all operations of the barge shall be complete.

The scope of work for the Contractor comprises the following:

1. Contractor shall prepare inspection and testing procedures and acceptance criteria to meet the requirements of the specifications, for approval of Owner's representative
2. Contractor shall provide the Owner's representative with access to all parts of their yard where fabrication activities occur and provide any documentation requested. Further, the Contractor shall provide the Owner's representative with temporary workspace during their inspection visits. The owner's representative will not need full time workspace.
3. Contractor shall be the initial purchaser of the crane to be installed on the barge, and shall ensure it is procured, fabricated, tested, delivered to Contractor, and installed in accordance with Port and crane manufacturer's specifications. Crane shall be new (i.e. not previously used elsewhere and refurbished for this project). Contractor shall confer

with the ultimate Owner (Port) on technical questions, but commercial communications shall be between Crane Supplier and Purchaser (Contractor).

4. Contractor shall review the design of the barge provided with the specifications and shall update the design to provide the form and function required by the specifications.
5. Contractor shall provide updated sizing specification and provide design calculations for review and approval by the Port at 35% (Preliminary), 65%, and 100% (Final) completion. The Port shall promptly review and respond to Contractor with approval or requested changes, not to exceed fourteen (14) calendar days from Contractor's submission. The Port acknowledges that requested changes may delay Contractor's ability to perform the Work according to the Schedule and/or increase/decrease the cost of the Work.
6. Contractor shall provide final arrangement and scantling drawings based on these final calculations for review and approval by the Port at 35% (Preliminary), 65%, and 100% (Final)completion. The Port shall promptly review and respond to Contractor with approval or requested change, not to exceed fourteen (14) calendar days from Contractor's submission. The Port acknowledges that requested changes may delay Contractor's ability to perform the Work according to the Schedule and/or increase/decrease the cost of the Work.
7. Contractor shall provide shop (detailed construction) drawings for review and approval by the Port at 35% (Preliminary), 65%, and 100% (Final) completion, prior to commencing construction of components and blocks. The Port shall promptly review and respond to Contractor with approval or requested change, not to exceed fourteen (14) calendar days from Contractor's submission. The Port acknowledges that requested changes may delay Contractor's ability to perform the Work according to the Schedule and/or increase/decrease the cost of the Work.
8. Contractor shall construct the barge in accordance with the agreed upon Specifications (Exhibit A-O) and referenced marine industry standards as integrated in the as integrated in the City-approved final 100% design.
9. Contractor shall construct spud piles in accordance with the agreed upon Specifications (Exhibit A-O) and drawings as integrated in the as integrated in the City-approved final 100% design.
10. Contractor shall respond to and correct any design and fabrication concerns identified at inspections by the Owner's representatives. If the design and fabrication concerns identified are not the result of non-conformity with the Contract Documents, City shall issue a Change Order for any requested change.
11. Contractor shall procure all vendor-furnished equipment in accordance with project specifications and install and test in accordance with manufacturer's instructions to verify proper operation.
12. Contractor shall design, procure, install and test all electrical equipment to verify proper operation.
13. Contractor shall prepare hull documentation and provide to the Owner upon delivery of the barge. Documentation shall include vendor-furnished operating and maintenance manuals, drawings and calculations for each piece of equipment and each component installed on the barge. A construction portfolio shall be prepared and delivered that

documents all materials and consumable used in the construction of the hull including steel, welding consumables, coatings, anodes, connectors (bolts, etc), piping, etc. Progress photographs taken during the course of construction and at milestone construction events (such as key hold points) shall be provided to the Port.

14. Contractor shall deliver the crane barge to Pier 70 at the Port of San Francisco.

Inspection of Work

Contractor shall prepare and follow an inspection test plan with key hold points defined in agreement with the Owner. The Owner will make regular in-person inspections of the barge as construction progresses. It is envisioned that the hold points will include as a minimum:

1. Delivery of steel to visually inspect and to verify mill test reports and compliance with the specification.
2. Fabrication of first block, prior to blasting and prior to coating.
3. At agreed-upon intermediate points in the construction of the hull, on a weekly or bi-weekly basis. To be decided based on construction schedule, as proposed by Contractor and accepted by Port staff.
4. At Completion of hull structure and tank testing
5. Crane factory acceptance test and delivery
6. Crane installation and functional testing onboard barge
7. Substantial completion walk-through and testing of all equipment and components
8. Deadweight Survey and hull inclining experiment
9. Prior to Sail away from Contractor's facility
10. Upon arrival at San Francisco and delivery to Owner

Key Milestones and Deliverables

The following outlines possible milestones to be agreed upon for progress payment purposes:

1. Kickoff meeting/initial partnering session at Contractor's facility
2. Design Calculations – Review by Port at 35% (Preliminary), 65%, and 100% (Final) completion for weight and stability and functional lifting capacity
3. Design drawings – structure and arrangement – Port review and comments at 35% (Preliminary), 65%, 100% (Final) completion.
4. Shop Drawings – Port review and comments at 35% (Preliminary), 65%, 100% (Final) completion.
5. Material order to steel and other primary suppliers and vendors
6. Crane order issued to vendor
7. Inspections during fabrication – Owner's representative will inspect the construction on a regular basis as presented in the Inspection Test Plan, as presented by Contractor and agreed upon by Port staff.

8. Trials at Contractor's facility
    a. Final inspection of all fabrication when completed and accepted by Owner's representative
    b. Final inspection of all equipment and components as installed on board accepted by Owner's representative
    c. Operational testing of all equipment as installed on board
    d. Stability test (Inclining experiment) with steps a) and b) above completed
    e. Lifting capacity test for crane with barge free floating (moored to the pier)
9. Transportation.
    a. Prior to Sail away from Contractor
    b. Upon arrival at San Francisco, removal of all sea fastenings and repair of any damages, satisfactory function testing of all equipment including crane to be demonstrated
    c. Final delivery to Owner at the Port at completion of all outstanding items including transfer of custody.

Appendix B

Calculation of Charges

Price Proposal

All non-steel line item prices included in this Appendix B-Calculation of charges shall be fixed until 90 days from the date Contractor's final price proposal is received. If the Effective Date occurs after 90 days from date final price proposal received, Contractor shall promptly submit an updated price proposal. The City, in its sole and absolute discretion, may adjust the amount of this Agreement to reflect the updated price proposal. If the City does not accept Contractor's updated price proposal, this Agreement shall be terminated for convenience as provided in Article 8.1.

Adjustment of Contract Price for Steel

Steel prices included in this Appendix B-Calculation of Charges is inclusive of a 25% contingency to account for potential increases in steel costs. The amount of this Agreement may be adjusted to reflect the changing cost of steel, including without limitation under that contingency and/or the Tariffs clause below as follows:

Updated Steel Pricing. The Contract Price represents an average steel cost per pound identified in "1a – Phase II Price Proposal – The Dutra Group 5.23.25," line 10. The Contract Price may be increased or decreased based on the actual cost paid by Contractor's for such steel at time of delivery of such steel, at which time Contractor shall prepare, and Contractor and City shall execute, a Change Order reflecting such increase or decrease in the Contract Price. Should Contractor's updated price exceed the City's approved budget for this Agreement, the City may, in its sole and absolute discretion, within three business days of receiving the updated quote terminate this Agreement for convenience as provided in Article 8.1.

Substantiation of Steel Costs. Prior to any payment by City for steel, Contractor shall submit Conrad's payment receipt and details of material quantities to demonstrate actual cost to Conrad. The City shall only be responsible for the actual price paid by Conrad for steel. Should Conrad's actual price paid for steel be less than the amount included in Appendix B, City shall receive a credit for the amount in excess. Failure to submit sufficient documentation to satisfactorily demonstrate to City the actual cost to Conrad]shall deem Contractor ineligible to receive any requested Steel price adjustment and shall automatically reduce the steel cost to the City by 25% from the amount included in this Appendix B. The documentation that Contractor submits shall not be unreasonably deemed insufficient.

Tariffs.

1) Contractor may request a price increase in writing due to tariffs within 30 days of any tariff implementation after award and the purchase order has been issued. Tariffs are to be applied only on the "cost of the goods" as they enter the US. No markup to the sale price of the goods or freight will be allowed. Only the actual cost of the tariffs may be passed on to the city.

a) The request must include a detailed cost breakdown with supporting documentation, including, but not limited to, the following listed below and any other documentation requested by City:

i) Applicable tariff rate(s) and date(s) that tariff came into effect.

ii) Invoices

iii) The component(s) of the line item(s) that is affected by the tariffs.

iv) The percentage of the line item(s) that includes the component(s) affected by the tariffs.

v) Country of origin/outside source for the component(s) affected by the tariffs.

2) If Contractor does not make a timely request and/or does not provide adequate supporting documentation, no increase to the purchase order amount due to increased tariff costs will be made. If Contractor submits a timely and complete request, City shall agree to increase the purchase order amount based on tariff costs through a change order. A price increase request due to tariffs will not be granted if Contractor failed to request the price increase(s) by notifying the City within 30 days of any tariff.

3) If tariff costs are decreased or removed after the purchase order is issued, Contractor shall notify the City and pass those cost savings on as a credit to City.

Calculation of Charges

Line	Description	Manufacturer / Subcontractor	Proposed Model/SKU	Quantity	Unit of Measure	Unit Cost	Dutra Mark Up	Extended Price
	Barge					**$ 3,350,000.00**		**$ 3,685,000.00**
1	Hull Steel - Plate and Shapes incl crane pedestal base; (510 ST at a blended rate of $0.78/lb)	Conrad Shipyard	N/A	1	LS	$ 2,300,000.00	$ 230,000.00	$ 2,530,000.00
1a	Hull Steel 25% increase Allowance	Conrad Shipyard	N/A	1	LS	$ 200,000.00	$ 20,000.00	$ 220,000.00
2	Labor for barge assembly and welding, incl welding materials	Conrad Shipyard	N/A		ton		$ -	$ -
3	Outfitting - materials and labor	Conrad Shipyard	N/A	1	LS	$ 390,000.00	$ 39,000.00	$ 429,000.00
4	ISO 20 ft Containers - quantity three (3)	Conrad Shipyard	N/A	1	LS	$ 50,000.00	$ 5,000.00	$ 55,000.00
5	Coating - materials and labor	Conrad Shipyard	N/A	1	LS	$ 410,000.00	$ 41,000.00	$ 451,000.00
	Spud Piles					**$ 230,000.00**		**$ 253,000.00**
6	Steel - rolled plate, flat plate, and shapes	Conrad Shipyard	N/A	1	LS	$ 180,000.00	$ 18,000.00	$ 198,000.00
7	Labor for pile assembly and welding, incl welding materials	Conrad Shipyard	N/A		ton		$ -	$ -
8	Spud Pile handling rigging (shackles and slings)	Conrad Shipyard	N/A	1	LOT		$ -	$ -
9	Winches	Conrad Shipyard	N/A		EA		$ -	$ -
10	Winch wire rope and terminations	Conrad Shipyard	N/A		LOT		$ -	$ -
11	Deck-mounted turndown sheaves	Conrad Shipyard	N/A		EA		$ -	$ -
12	Pile Sheaves	Conrad Shipyard	N/A	1	LS	$ 50,000.00	$ 5,000.00	$ 55,000.00
13	Installation of above and testing on barge	Conrad Shipyard	N/A		EA		$ -	$ -
	Crane					**$ 2,091,971.00**		**$ 2,301,168.10**
14	Complete crane except for Pedestal/Kingpost (including spare parts)	Techcrane International, LLC	L120-136	1	EA	$ 1,313,740.00	$ 131,374.00	$ 1,445,114.00
15	Pedestal or Kingpost complete with bevel for welding to barge structure	Techcrane International, LLC + Conrad + Dutra	L120-136	1	EA	$ 240,000.00	$ 24,000.00	$ 264,000.00
16	Transporation Crane from factory to barge fabricator	Techcrane International, LLC	L120-136	1	EA	$ 50,000.00	$ 5,000.00	$ 55,000.00
17	Installation and testing of crane onboard barge	Dutra / Techcrane International, LLC	L120-136	1	EA	$ 324,383.00	$ 32,438.30	$ 356,821.30
18	Commissioning Services (Harbor Acceptance Test)	Dutra / Techcrane International, LLC	L120-136	1	EA	$ 43,398.00	$ 4,339.80	$ 47,737.80
19	Training Services for crane operators	Techcrane International, LLC	L120-136	1	EA	$ 20,450.00	$ 2,045.00	$ 22,495.00
20	Extended Warranty – 2 years (OPTION (base warranty included in item 14)	Techcrane International, LLC	L120-136	1	LOT	$ 100,000.00	$ 10,000.00	$ 110,000.00
	Mooring system					**$ 640,000.00**		**$ 704,000.00**
21	Winches	Conrad Shipyard	N/A	1	LOT	$ 340,000.00	$ 34,000.00	$ 374,000.00
22	Tuggers	Conrad Shipyard	N/A	1	LOT	$ 130,000.00	$ 13,000.00	$ 143,000.00
23	Deck fittings (Kevels, bitts, chocks, etc)	Conrad Shipyard	N/A	1	LOT	$ 130,000.00	$ 13,000.00	$ 143,000.00
24	Wire rope and fittings	Conrad Shipyard	N/A		LOT		$ -	$ -
25	Fairleads	Conrad Shipyard	N/A	1	LOT		$ -	$ -
26	Anchors	Conrad Shipyard	N/A	1	LOT	$ 40,000.00	$ 4,000.00	$ 44,000.00
27	Buoys and pendants	Conrad Shipyard	N/A		LOT		$ -	$ -
28	Installation of above and testing on barge with hydraulic and electric systems	Conrad Shipyard	N/A		LOT		$ -	$ -
	Hydraulic System					**$ 820,000.00**		**$ 902,000.00**
29	Diesel powered HPU	Conrad Shipyard	N/A	1	EA	$ 60,000.00	$ 6,000.00	$ 66,000.00
30	Installation of HPU	Conrad Shipyard	N/A	1	EA	$ 760,000.00	$ 76,000.00	$ 836,000.00
31	Supply of hydraulic piping and fittings	Conrad Shipyard	N/A		Lot		$ -	$ -
32	Fabrication of hydraulic piping , fittings, hoses, and labor	Conrad Shipyard	N/A		Lot		$ -	$ -
33	Installation and testing of piping, interconnection with equipment	Conrad Shipyard	N/A		EA		$ -	$ -

	Electrical					**$ 812,000.00**		**$ 893,200.00**
34	Diesel powered Generator	Conrad Shipyard	N/A	1	EA	$ 110,000.00	$ 11,000.00	$ 121,000.00
35	Electrical switchboard	Conrad Shipyard	N/A	1	EA	$ 202,000.00	$ 20,200.00	$ 222,200.00
36	Cable and components	Conrad Shipyard	N/A	1	Lot	$ 480,000.00	$ 48,000.00	$ 528,000.00
37	Lighting	Conrad Shipyard	N/A	1	Lot	$ 20,000.00	$ 2,000.00	$ 22,000.00
38	Installation and testing of electrical system and interconnection with equipment	Conrad Shipyard	N/A		EA		$ -	$ -
	Electric Air compressor and receiver					**$ 90,000.00**		**$ 99,000.00**
39	Air Compresor and Air Receiver	Conrad Shipyard	N/A	1	EA	$ 30,000.00	$ 3,000.00	$ 33,000.00
40	installation and testing of compressed air system	Conrad Shipyard	N/A	1	EA	$ 60,000.00	$ 6,000.00	$ 66,000.00
	Fuel tank - Not included							
	Purchase price	Conrad Shipyard	N/A	1	EA	$ -	$ -	$ -
	installation and testing of Fuel Tank and system	Conrad Shipyard	N/A	1	EA	$ -	$ -	$ -
41	Shipyard Services & Testing (launching, testing, scaffolding, BR insurance, engineering, crane support, QA, OH)	Conrad Shipyard	N/A	1	EA	$ 460,000.00	$ 46,000.00	$ 506,000.00
42	Inclining test and final stability documentation	Dutra	N/A	1	EA	$ 117,195.00	$ 11,719.50	$ 128,914.50
43	Final documentation for complete unit	Dutra + Glosten	N/A	1	Lot	$ 50,000.00	$ 5,000.00	$ 55,000.00
44	Transport of complete unit to San Francisco Bay, and delivery to Port in water, fully assembled and ready to operate (including any regulatory documentation and approvals)	Dutra	N/A	1	EA	$ 1,525,000.00	$ 152,500.00	$ 1,677,500.00
45	Final Acceptance Tests and handover	Dutra	N/A	1	EA	$ 131,992.00	$ 13,199.20	$ 145,191.20
46	Contractor Warranty - 12 months from Owner's acceptance	Dutra + Conrad	N/A	1	EA	$ 351,086.00	$ 35,108.60	$ 386,194.60
47	Engineering Design	Glosten	N/A	1	EA	$ 247,000.00	$ 24,700.00	$ 271,700.00
48	Engineering Production	Glosten	N/A	1	EA	$ 302,000.00	$ 30,200.00	$ 332,200.00
49	Dutra Project Management, Travel, & QC, Overhead including G&A	Dutra	N/A	1	LS	$ 1,930,112.00	$ 193,011.20	$ 2,123,123.20
50	Barge Startup Incidentals Allowance (fuel, oil, grease, spare wire and hoses)	Dutra	N/A	1	LS	$ 200,000.00	$ -	$ 200,000.00
51	Insurance (Builders Risk, Hull & Machinary Insurance)	Dutra	N/A	1	LS	$ 135,000.00	$ -	$ 135,000.00
52	Performance and Payment Bonds	Dutra	N/A	1	LS	$ 119,250.00	$ -	$ 119,250.00
						$ 13,602,606.00		
						TOTAL EXTENDED PRICE		**$ 14,917,441.60**
53	Contingency Allowance for Changes, Material Price Escallations, Non Recoverable Warranty Items, etc.	Dutra	N/A	1	LS	$ 500,000.00	$ -	$ 500,000.00
						TOTAL WITH CONTINGENCY		**$ 15,417,441.60**
54	Estimated Sales Tax @ 8.625%							$ 1,329,754.34
						TOTAL WITH CONTINGENCY & EST. SALES TAX		**$ 16,747,195.94**

Appendix C

Progress Payment, Delivery, and Compliance Requirements

1. Price

Only prices that appear on Appendix B, or that are approved by City via written modification pursuant to Section 11.5 of the Agreement, will be considered. No other pages with prices or attached price lists and/or catalog prices will be considered. Prices shall be inclusive of any Federal, State, local sales or use tax. In the event of a discrepancy between the unit price and the extended price, the unit price will prevail.

2. Progress Payments at Milestones

Progress Payments will be made in accordance with the following required Milestones.

For progress payment milestones associated with preparation of drawings or calculations milestones shall be considered met for the purposes of payment timeline when the city confirms that calculations or drawings are accepted via issuance of a letter of confirmation or when the contract review period expires.

For progress payment milestones associated with order of materials or equipment milestones shall be considered met for the purposes of payment timeline via the issuance of a letter of confirmation following receipt of fully signed and executed contracts or purchase orders. Contractor shall provide such assurances including technical documentation as required by city to confirm that all material associated with the milestone has been ordered. City shall have three (3) days to review materials before issuing request for clarification or letter of confirmation. If city does not provide comment or confirmation milestone shall be considered met.

For progress payment milestones associated with construction milestones, completion of tests, or inspections milestones shall be considered met for the purposes of payment timeline via the issuance of a letter of confirmation. Contractor shall provide city with at least fourteen (14) calendar days notice of the anticipated test or completion date to allow city representatives to attend at city's discretion. Following completion of test / inspection contractor shall provide city with any test reports and technical documentation indicating satisfactory completion. City shall have seven (7) calendar days following inspection or receipt of technical documentation to review reports and issue letter of confirmation.

Milestone Number	Milestone	Progress Payment % (of Total Cost)
3.1	Kickoff meeting/initial partnering session at Contractor's facility. Contractor is to present construction schedule and Inspection Test Plan. Confirmation of steel pricing (See Appendix B), and delivery of insurance documentation.	n/a

3.2	Design Calculations – Review by Port at 65%, and 100% completion for weight and stability and functional lifting capacity.	**5% of total** @ 100% calculations approval
3.3	Design drawings – structure and arrangement – Port review and comments at 35%, 65%, 100% completion.	**5% of total** @ 100% design drawings approval
3.4	Shop Drawings – Port review and comments at 35%, 65%, 100% completion.	**10% of total** @ 100% shop drawings approval
3.5	Material order to steel and other primary suppliers and vendors	**10% of total** @ confirmation of material order
3.6	Crane order issued to vendor	**10% of total** @ confirmation of crane order
3.7	Inspections during fabrication – Owner's representative will inspect the construction on a regular basis at least at the following points:	
	a. Delivery of steel	n/a
	b. First Laying of Barge Keel	**15% of total** @ confirmation
	c. At 50% construction of the hull	**10% of total** @ confirmation
	d. At Barge Launch	**10% of total** @ confirmation
	e. Completion of hull structure and tank testing	**5% of total** @ acceptance
	f. Crane factory acceptance test and delivery	**5% of total** @ delivery
	g. Crane installation and functional testing onboard barge	**5% of total** @ acceptance
	h. Substantial completion walk-through and testing of all equipment and components	**5% of total** @ acceptance
	i. Deadweight Survey and hull inclining experiment	n/a
3.8	Trials at Contractor's facility	
	a. Final inspection of all fabrication when completed and accepted by Owner's representative	n/a
	b. Final inspection of all equipment and components as installed on board accepted by Owner's representative	n/a

	c. Operational testing of all equipment as installed on board	n/a
	d. Stability test (Inclining experiment) with steps a) and b) above completed	n/a
	e. Lifting capacity test for crane with barge free floating (moored to the pier)	n/a
3.9	Transportation.	
	a. Prior to Sail away from Contractor's fabrication site.	n/a
	b. Upon arrival at San Francisco, removal of all sea fastenings and repair of any damages, satisfactory function testing of all equipment including crane to be demonstrated	n/a
	c. Final delivery to Owner at the Port at completion of all outstanding items, including product warranties.	n/a
	d. COMPLETION OF MILESTONE 3.9, INCLUDING FINAL TRIALS UPON DELIVERY	**5% of total** @acceptance

3. Delivery

Contractor must comply with the delivery requirements set forth in Appendix D, Exhibit A-0: Specifications.

Appendix D

Design Specifications and Construction Drawings

Exhibit A-0:	Specifications
Exhibit A-1:	General Arrangement
Exhibit A-2:	Structural Scantling Plan
Exhibit A-3:	Spud Pile
Exhibit A-4:	Outfitting
Exhibit A-5:	Mechanical Arrangement
Exhibit A-6:	Electrical One-Line Diagram

EXHIBIT A-0 – Specifications

EXHIBIT A0
Specifications

1 - GENERAL EQUIPMENT SPECIFICATIONS:

SPECIFICATION OUTLINE:

The following specifications for a Crane Barge, complete with pedestal crane, are divided into three complete sections. The first section outlines the overall specification requirement. The second details the Barge portion of the complete unit. The third section details the Pedestal Crane. The Crane Barge shall be delivered complete with all equipment and accessories necessary for safe and efficient operation, ready for immediate job site operation within the City and County of San Francisco. The Crane Barge shall comply with the project specifications, manufacturer's specifications, industry standards, and project drawings.

In general, the specifications provided in the following Sections 2 and 3 shall be adhered to. As written, these describe the barge designed by the Port that forms the basis for this request. The specifications describe the barge in terms of performance requirements as well as describing the physical layout, construction details, and numerous other aspects of the barge design including specific equipment required. Those requirements in the specifications that follow that are defined by "shall" or "will" shall be strictly adhered to and variation from these will not be accepted.

DEFINITION OF TERMS

Port of San Francisco hereinafter shall be referred to as **"Port"**
City and County of San Francisco hereinafter shall be referred to as the "**City"** or **"CCSF".**
Contract Administrator's Office of the City and County of San Francisco hereinafter shall be referred to as **"Purchasing"**.

The following terms are used throughout this document and are defined here to differentiate responsibility through the building of the Crane Barge.

Proposer/Prime Contractor: Organization awarded contract by the Port for the fabrication, assembly, integration, testing and delivery of the Crane Barge. Has ultimate responsibility for delivering the fully assembled and tested barge and equipment. Entity leading the team and will be contractually responsible for delivering the completed assembled crane barge. Presumably the Proposer will also act as the Prime Contractor for this project.

Fabricator: May be the Contractor or may be a subcontractor to the Contractor hired to fabricate the barge hull of steel and possibly integrate the Vendor-supplied equipment onto the barge. Depending on the relationship with the Contractor, Fabricator may have responsibility only for constructing the barge or may have much broader responsibility including procuring, integrating and testing all equipment to be installed.

Manufacturer: Maker of equipment that will be installed on the barge. Equipment may be off-the-shelf or custom designed and built. Responsible for design and construction of equipment including testing prior to delivery to Vendor or Fabricator.

Vendor: Provider of equipment manufactured by others. Vendor could be a manufacturer also, but not necessarily. Responsible for provision of equipment including testing prior to installation on board.

Facility: Primary site where construction of the barge and installation and integration of the major equipment will occur. The crane manufacturer's *plant* could be a secondary *facility*.

Plant or *Factory*: Site where Vendor-supplied equipment is manufactured.

GENERAL REQUIREMENTS

The latest approved fabrication standards and practices shall be employed in the design and construction of the Crane Barge. The workmanship shall be of the highest quality in its respective field.

The contractor shall ensure adequate accessibility of the various systems that require periodic maintenance, ease of operation and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to a Crane Barge as set forth under "**Acceptance and Performance Test Requirements.**"

All components and parts shall be new and previously unused and of manufacturer's latest model. The use of new military surplus, used, obsolete, discontinued, or items made in prison or by convict labor, shall not be acceptable.

MANUFACTURING, MATERIAL AND DESIGN PRACTICES:

It is intended that the contractor, fabricator, manufacturer, and/or vendor in the selection of components, will use material and design practices that are the best available in the industry for the type of operating conditions to which the unit(s) will be subjected. Generator, Air Compressor, Mooring components including winches and fairleads, Hydraulic Power Unit, rigging and other component parts shall be selected to address the performance requirements of this specification. All parts, equipment and accessories shall conform in strength, quality of material and workmanship to recognized industry standards.

ALTERNATES:

When the name of a manufacturer, brand, or make, with or without model number, is used in describing any item in this specification, responses for similar articles will be considered unless otherwise stated. Respondents may also propose items of equivalent features or manufacturer's updated part or part number. Purchasing shall be the sole judge as to whether such alternate articles are acceptable. Unless respondent states to the contrary, articles offered will be

assumed to be the specific article named in this specification. If not offering the specific article named, respondent should enclose full information, specifications and descriptive data on items offered with its response. Purchasing reserves, the right to permit deviations from the specifications if any article offered is substantially in accord with Purchasing's specifications and is deemed by Purchasing to be of as good quality and as fully satisfactory for its intended use. Respondent is responsible for identifying any deviations from Purchasing's specifications. Respondents should not assume an alternate offered is an approved equal. The Port will evaluate the alternate and inform the respondent if the alternate is acceptable. Purchasing must approve all alternates.

CONDITIONAL MODIFICATIONS:

Potential variances of a specific manufacturer may require variances in the design to some degree. Therefore, respondents shall clearly and completely outline all areas needing such modifications.

GENERALITIES:

To allow for contractor's specific designs we have left certain areas of our specifications general by design. In such cases, the items being referred to may be general but adherence to the requested end product and/or result must be met. This is especially important in areas where critical dimensions, lifting capacities, grades of steel, etc. are specified. **In the cases where the word "shall" is used, no substitution will be allowed.**

MANUFACTURER'S SPECIFICATION:

Complete contractor's specification, published literature and photos, or illustrations of unit proposed shall be furnished with response. For all vendor-furnished components. only new models in current production which are catalogued by the manufacturer, and for which printed literature and specifications are available will be accepted An SDS (Safety Data Sheet) shall be supplied for all fluids used.

MANUFACTURER'S STANDARD EQUIPMENT:

For vendor-furnished equipment, all equipment and components listed as standard by the manufacturer for model specified shall be furnished whether or not such items are detailed herein, e.g., special wrenches, tool kits, etc. Optional equipment as necessary to meet the following requirements of this specification shall also be supplied. Should the requirements as specified not comply, the Contractor is required to re-figure and revise the specifications to meet all laws, rules and regulations where it applies to items such as the ratings of vendor supplied equipment and the Port is to be notified thereof.

APPLICABLE DOCUMENTS AND CERTIFICATIONS:

Specifications on the following pages are written with the intent to comply with all applicable documents and certifications, but the final responsibility to comply shall rest with the Contractor and not the City and County of San Francisco. The successful respondent shall adhere to the standards set forth by the following agencies:

- State of California General Industrial Safety Orders
- State of California Health and Safety Code, Motor Vehicle Pollution Control
- California Occupational Safety and Health Act (OSHA) and the EPA
- United States Coast Guard
- American Bureau of Shipping
- American Petroleum Institute
- American Society of Mechanical Engineers (ASME)
- American National Standards Institute (ANSI)
- An SDS (Safety Data Sheet) for all fluids used shall be included with the delivery of the equipment.
- Underwriters Laboratories (UL)

OPERATIONAL NOISE STANDARD:

Noise level shall be in conformance with standards established by Local, State and Federal Agencies. For compliance with noise requirements Port personnel may test each unit delivered before the unit is accepted.

HOSE AND WIRING ROUTING, HARDWARE REQUIREMENTS:

All hoses and wiring shall have adequate protective covers wherever there is a possibility of contact with any other components. Separators shall be used where applicable. No tape or adhesive fasteners shall be accepted. All hoses, wirings, and pipes shall be routed to be clear of all heat sources and shall be protected from any present or potential source of snags, abrasions or sharp edges. If any wiring for any lamps is routed through any tool compartment or canopy, these wires shall be enclosed in steel. All high voltage electrical shall be routed through armored weatherproof conduit. All fasteners (nut, bolts, rivets, etc.) shall be grade 5 or better with a rust inhibiting coating. Several applications including any hydraulic installations may require grade 8. All hydraulic hoses, fittings and piping shall be manufactured specifically for high-pressure hydraulic systems. All hoses, electrical wiring and other components shall be specifically designed for that designated application.

SWITCHES, LABELS:

All external toggle and push button switches shall be marine type with additional rubber boots. All controls, warning gauges and valves shall be marked as to function with stamped or engraved stainless steel, aluminum, and/or UV and weather-resistant acrylic plastic labels. These labels shall be attached by aluminum and/or stainless-steel rivets compatible with the material to which they are attached.

WELDING:

All welding shall be continuous where applicable. All welding shall be performed in accordance with the applicable requirements of the latest codes, rules or specifications of the American Welding Society (AWS) and requirements of these specifications and special provisions and

shall be subject to the test and examinations therein specified.

FASTENERS:
All fasteners shall be grade 5 or better and in some cases grade 8 must be used. Fasteners shall be corrosion resistant and shall utilize a locking nut washer or thread locker wherever possible. Fasteners that are susceptible to corrosion shall be coated with an anti-corrosion compound.

ISO COMPLIANCE
The Contractor should operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the "International Organization for Standardization (ISO)" specify the quality systems that shall be established by the Contractor for design, manufacture, installation, and service. A copy of the certificate of compliance must be included with the response. In lieu of ISO compliance, the PORT may consider documentation of codes of practices, quality control and assurance programs or procedures utilized by the Contractor.

DELIVERY REQUIREMENTS:
A delivery schedule is required as part of the contract response. This unit should be delivered and be ready for service within the proposed time range.

The Crane Barge will be inspected as outlined below:

INSPECTION POINTS

For inspection during the fabrication of the barge, the port plans the following activities:
Inspection of Work

Contractor shall prepare and follow an inspection test plan with key hold points defined in agreement with the Owner. The Owner will make regular in-person inspections of the barge as construction progresses.

Contractor to provide Owner's inspector(s) yard access and a reasonable office working space to utilize during yard visits with desk, lighting, electricity, internet access and other facilities as needed. Inspector to have unrestricted access to fabrication sites where work on this project is ongoing during normal business hours for the yard.

Inspection plan shall include a kickoff meeting with the Contractor and fabricator(s) (if separate entities) and the following minimum hold points for inspection. Additional inspections will be required if Owner is unable to complete inspection and/or reinspection is required. All inspection points will be attended at owners discretion, owner may elect to defer inspections to contractor's representative with test reports to be provided. An approximate inspection plan is provided below, with inspection criteria and expected number of visits for each criteria listed.

1. Kickoff meeting (1)

2. Delivery of steel to visually inspect and to verify mill test reports and compliance with the specification at Fabricator (1) and at crane fabricator site (if different) (1)
3. Fabrication of first block (1)
4. At agreed-upon intermediate points in the construction of the hull, on a weekly or bi-weekly basis (6)
5. At Completion of hull structure and tank testing (1)
6. Prior to painting (1)
7. During paint application (dedicated paint inspector) (3)
8. Crane factory acceptance test and delivery (1)
9. Crane installation and functional testing onboard barge (1)
10. Substantial completion walk-through and testing of all equipment and components (1)
11. Deadweight Survey and hull inclining experiment (1)
12. Prior to Sail away from Contractor's facility (1)
13. Upon arrival at San Francisco and delivery to Owner (1)

21 inspection instances above.

PRE-CONSTRUCTION REQUIREMENT:

The successful respondent shall be required to attend a pre-construction meeting with the initiators of these specifications and/or designated Port representative(s) within 30 calendar days prior to the start of any construction. Port representatives working with the Contractor representatives will finalize all details and requirements needed to begin construction. Weekly update photographs (digital format) may be required of the Contractor if requested. The purpose is to ensure the proper interpretation of the City's written specifications. If necessary, the Contractor may also be required to coordinate any additional meetings prior to the fabrication or installation of equipment, painting, testing etc.

MANUFACTURER RECALLS:

All known open recalls issued by vendors or manufacturers or other agencies with regard to equipment being supplied must be resolved prior to delivery.

FINAL DELIVERY

The contractor shall, at their expense, deliver (FOB destination) the completed Crane Barge to the following location:

Port of San Francisco
Pier 70
San Francisco, CA 94107
(415) 609-8549 – Port Project Manager

Prior to delivery, contractor shall coordinate delivery date and time with the Port.

Prior to acceptance, the Crane Barge shall be thoroughly checked, and include all equipment and accessories as specified in the fabrication specifications and referenced drawings, ready for use when delivered. A factory-trained and authorized instructor shall then remain with the Crane Barge for 5 working days to instruct Port personnel in the proper operation, care, and maintenance of the equipment delivered. Delivery does not mean acceptance of the Crane Barge.

The following documents, items, and information, as applicable must be delivered with each Crane Barge, in original form:

1) Completed "Contractor's Report of Sale,"
2) Inclining report stating the final finished weight and center of gravity of unit as determined by the inclining test. Inclining test shall be supervised by a registered professional naval architect.
3) Statement of Contractor's and Manufacturer's warranty and warranty certificates for all equipment and subsystem components.
4) Individual stock number (identification number or manufacturer's number).
5) Any documents requiring the buyer's name and address, unless otherwise stated, must be the Port of San Francisco at the address listed above.

ACCEPTANCE AND PERFORMANCE TEST REQUIREMENTS

Contractor shall prepare a detailed performance test procedure to demonstrate proper operation of all equipment installed on the barge. The test procedure shall also demonstrate the lifting capacity of the crane and barge and also that the floating attitude is within the allowed trim and heel angles detailed in the specifications. The tests shall be witnessed by the Port or designated inspection staff at Port's discretion.

TEST:

The test shall be conducted with the Crane Barge fully loaded and shall consist of a load test and a full function test of all installed equipment. During this test, Crane Barge and all components shall show no signs of permanent deformation or other damage. The Crane Barge shall adhere to the following parameters:

1) The Crane Barge, when fully loaded, shall be capable of lifting 60 kips at 60 ft radius at any rotational orientation of the boom without heel or trim angles exceeding manufacturer's limitations for machine angle

2) All other installed equipment and systems shall be function tested to demonstrate proper and safe operation, in accordance with the project specifications

3) The Crane Barge shall satisfy all other requirements as agreed upon during the response phase.

In event the Crane Barge fails to meet on-site delivery testing requirements, a second set of trials may be arranged within 30 days following first test failure. Such subsequent trials shall be final and conclusive and failure to meet these requirements shall be cause for rejection.

Also, failure to make changes deemed necessary by the Port to make Crane Barge conform to any clause of the specifications within 30 days after notice to the fabricator shall also be deemed cause for rejection of the Crane Barge. Permission to keep or store the Crane Barge by the Port during the testing and re-testing period, if agreeable with fabricator shall not constitute acceptance of the Crane Barge.

The Port will accept the crane Barge when all tests have been passed, training completed, manuals, accessories and all equipment is delivered.

SERVICE REQUIREMENTS

In the event City timely notifies Contractor of any defect covered under the warranties provided below, within ten days of City making the defective component or entire Vessel, if necessary, available to Contractor, Contractor will commence repairs and/or replacement, at its option. If Contractor's vessel fabrication subcontractor is performing the repair/replacement under the warranty, the Vessel or any component thereof shall be transported to and from its shipyard without expense to Contractor / its vessel fabrication subcontractor; provided that if it is not practicable to have the Vessel proceed to the shipyard, City may, with the prior written consent of Contractor, have such repairs and/or replacement made elsewhere at a competent shipyard to be mutually agreed upon by Contractor and City and in such event, Contractor shall promptly reimburse City for reasonable costs directly incurred by City in repairing the claimed defect.

Contractor shall have no responsibility whatsoever with respect to any defects or faulty workmanship not reported in writing to Contractor within the warranty periods identified below regardless of any negligence of Contractor or its employees or subcontractors or their employees or of any supplier of materials in connection therewith. Upon expiration of the warranty periods, City waives and releases Contractor, its employees, subcontractors and their employees and all suppliers of materials from any and all claims, liabilities, damages and losses (including without limitation loss to or of the Vessel), whether same be based on contract and/or tort, resulting from defective design, engineering, manufacture or installation of property or materials or from unseaworthiness, it being specifically understood that any such defects reported after expiration of the warranty periods and all damages related thereto shall be the exclusive responsibility of City.

The sole and exclusive remedy of City for any warranty claim shall be the obligation of Contractor to repair and/or replace, or cause to be repaired and/or replaced, any defective workmanship or installation of materials and/or equipment, provided such defects or breakdowns have not been caused by City's negligent operation or maintenance of the Vessel or its equipment after delivery. In no event shall Contractor be responsible for any sum in excess of the cost of the repairs

and/or replacement as specified herein, it being specifically understood that Contractor is not responsible for delay, demurrage, loss of profits, loss of use or any other direct or consequential damages.

INTENDED USE:

The unit proposed by respondents shall be configured to meet or exceed the following intended usage of said unit. The unit described in specifications is intended to cover the furnishing and delivery to the **Port of San Francisco** of a complete Crane Barge built to the highest level of quality and engineering excellence and equipped as hereafter specified. These specifications cover minimum requirements as to the type of construction and testing to which the Crane Barge shall conform.

The following specifications are for a Crane Barge. The Crane Barge shall consist of a fabricated steel barge hull, with a pedestal crane permanently installed, and other construction-support equipment including a diesel-powered electrical generator, diesel powered hydraulic power unit, electric air compressor and pressure tank, fuel tank, spud pile system with hydraulic winches, and assorted storage containers and deck house.

It is the responsibility of the respondent to review and scrutinize all aspects of the configuration of this unit including, but not limited to, all specifications presented in this document. If necessary, the respondent shall recommend adjustments to the written specification so that the unit's subsystems are adequate for this Crane Barge to operate on a daily basis, fully loaded with all components, and tools needed for the unit's daily tasks along the waterfront of the City of San Francisco. This shall be accomplished without increasing maintenance costs, overstressing the hull structure, or adding any unnecessary and/or abnormal wear to any other components of the unit. It is the responsibility of the successful respondent to ensure this unit will comply or exceed compliance to all safety and environmental standards set forth by the City of San Francisco, State of California, and the Federal Government.

SECTION 2 - Crane Barge

The Barge to be furnished under the specifications outlined below: "Specifications for the Construction of a Crane Barge for the Port of San Francisco" shall meet or exceed the specification presented. This Crane Barge shall be new and unused. This Crane Barge is to perform operations in all weather conditions specified herein. Special attention to major components and/or specified critical capacities is mandatory.

NOTE: Crane Barge and component equipment to be supplied shall **include all safety systems available from the Contractor and manufacturers.**

ALL CAPACITIES, WEIGHTS, MEASUREMENTS, AND RATINGS ARE APPROXIMATES UNLESS OTHERWISE STATED AS A "SHALL".

1 Crane Barge

EXHIBIT A0
Specifications

1.1 General Description

_____ Kind of barge: Crane and Deck barge for construction activities primarily within the confines of San Francisco Bay.
_____ Type of barge: Flush deck barge with pedestal-mounted rotating crane, raked bow, with spud piles.
_____ Cargo Decks: Main Deck.
_____ Classification: None, but see below
_____ Flag: None

1.2 Principal Particulars

_____ Length, overall	abt.	150.0 ft
_____ Breadth, hull, molded		55.0 ft
_____ Depth, molded to Main Deck		8.0 ft
_____ Draft, summer load line, molded	abt.	5 ft - 1 in

1.3 Classification, Rules, and Regulations

_____The barge to be designed and built-in accordance with the following Rules and Regulations:
_____ Steel Barge Rules of the Classification Society ABS
_____ IACS Rec 47, Shipbuilding and Repair Quality Standard - Rev.8 Oct 2017
_____ Rules and Regulations of the United States Coast Guard
_____ ILLC 1966 with the Protocol of 1988 and amendments
_____ 2008 Intact Stability Code
_____ It is not the intent of the owner to have the barge classed. The planned life of the barge is approximately 40 years and the design and coatings systems are to be robust to reflect this.

1.4 Plans and Drawings

Drawing No.	Title
_____ 2018-060-01-01	General Arrangement
_____ 2018-060-01-02	Hull Scantling Plan
_____ 2018-060-01-03	Spud Piles
_____ 2018-060-01-04	Outfitting
_____ 2018-060-01-05	Mechanical Arrangement
_____ 2018-060-01-06	Electrical One Line

2 Hull Part

2.1 Hull General

_____ Barge shall be designed for ocean passage for delivery from the builder and possible future relocation. Barge is rectangular in shape with square stern and partially raked bow. All hull surfaces are flat and deck has no camber. A tubular crane pedestal shall be

integrated into the hull structure at a distance equal to one-half the beam from the stern on centerline. This pedestal will support a fully rotating pedestal crane for construction works.

2.2 LOADING CAPACITIES

2.2.1 Lightweight & Deadweight

_____ Deadweight Summer load line (molded) abt. 965 T

_____ Lightship Weight abt. 350 T

_____ All tons as used in this specification shall be short tons of 2,000 lbs.

2.2.2 Crane Lifting Capacity

_____ The deadweight and stability shall be sufficient to support a hydraulic pedestal crane such as a Techcrane Model L120-136 that can be used to lift timber or composite piles weighing less than 45 kips plus rigging from its minimum operating radius through to its operating radius of 60 ft. Expected structural crane capacities are to be as follows:

_____ Crane capacity at closest reach (~25 ft) abt. 120 kips

_____ Crane capacity at 60 ft abt. 60 kips

2.2.3 Tank Capacity (100% Full)

_____ The barge hull as designed is subdivided into a total of 14 individual compartments by two longitudinal watertight bulkheads, and five transverse watertight bulkheads, with two partial bulkheads subdividing the forward center compartment into three tanks. The arrangement results in six compartments on each side that as an option can function as ballast tanks, five center voids, and three smaller compartments in the center forward as shown on the General Arrangement. Two of the side compartments shall be filled with freshwater ballast for normal operations, one each side, and in addition, the small centerline compartment forward is also designated for freshwater ballast. The wing tanks will have a minimum width of 13’-9” so that the watertight longitudinal bulkhead is inboard of B/5 for damage stability reasons. The contractor shall verify the tank arrangement provides adequate stability performance that complies with the requirements of this specification. An alternate compartment arrangement that allows the stability requirements to be met may be acceptable.

_____ The barge shall survive any two adjacent side or end compartments flooded without submerging the deck edge. An alternative subdivision arrangement may be allowed if it can be shown that the barge can survive the two-compartment flooded requirement.

_____ Ballast and void tanks shall have hatches with watertight bolted cover plates of a size that will allow filling, venting and personnel access for inspection.

_____ Ballast water tanks (total - three) abt. 8,650 ft3

2.2.4 Area Deck Loading

_____ Strength of the main deck shall be suitable for uniform loading of 1200 lbs/ft2 over an area tributary to one transverse frame (approximately a footprint area 9-ft x 14 ft) but totaling less than 75 short tons in one such area.

2.3 Hull Structure

2.3.1 Hull Material

_____ In general, all structure should be made from mild steel (e.g. ABS Grade A, yield strength 34 ksi, or ASTM A-36, yield strength 36 ksi) except where described otherwise. Scantlings shall be as shown on the drawings. Local structure, where required but not shown on the drawings, shall be developed by the Builder. Any deviations or additions of structure from the drawings, such as addition or modification of foundations to support equipment, shall be submitted to Owner for review and approval.

_____ Permissible loads and scantlings shall be in accordance with the rules of the Classification Society but with extra corrosion margin in the side shell (approximately 3/16 inch) and bulkheads and bottom plating (approximately 1/16 inch).

2.3.2 Structural Arrangement

_____ The hull shall be a combination of longitudinal and transverse framing and of all-welded construction. The basic structural design shall provide for full continuity of longitudinal structural members.

_____ All welding in tanks (except in dry voids and cofferdams), on outside exposed surfaces, in bilges and in all other wet spaces shall be continuous. Decks, bulkheads, shell, etc., shall have surfaces reasonably fair, without buckles, kinks, or other surface irregularities.

_____ Smooth welded steel extra heavy pipe molding or half round bars shall be fitted in way of and for a generous distance each side of mooring fittings.

_____ The transverse and longitudinal bulkheads and trusses are to be arranged as shown on the General Arrangement Plan.

_____ Pillars and stanchions shall be provided as shown on the scantling plans and where required to support local loads.

2.3.3 Crane Pedestal

_____ The pedestal that supports the crane will be provided in two parts. The lower part will be built into the barge hull by the Fabricator. The upper part will be provided by the crane manufacturer and will include the mounting flange for the crane slew bearing. The two will be joined during construction by a circumferential butt weld.

_____ The lower part of the pedestal shall be fabricated of steel plate rolled to the required diameter shown on the design drawings. This tubular member is supported by the transverse bulkhead at Frame 4 (27’-6” from stern) and by the centerline bulkhead between the stern and Frame 5. Large steel plate brackets shall support the pedestal at the deck. Internal brackets shall be installed as well, to provide additional support to the pedestal at the main deck.

_____ The upper edge of the barge-portion of the rolled plate for the pedestal shall be square and parallel to baseline in preparation for a circumferential butt-weld to accept the crane-supplier portion of the pedestal. The upper part of the pedestal will come from the crane manufacturer pre-beveled and ready for welding.

2.3.4 Spud Pile Trunks

_____ Two vertical watertight steel trunks penetrating the deck and running down through the bottom shell shall be provided to allow passage of the spud pile through the hull. These trunks are to be fabricated of steel in accordance with the Hull Scantling Plan. Similar to the spud piles, particular care shall be given to dimensional accuracy of the trunks during fabrication.

_____ Prior to delivery, the spud piles shall be run through both trunks to verify that the tolerances for the design clearance have been met.

2.4 Hull Materials

_____ The hull shall be fabricated of mild strength steel of ABS Grade A or ASTM A-36, fully welded, except where shown differently on drawings. In such cases, material shall be as noted on drawing. All welding consumables shall be in accordance with ABS requirements and applicable yard welding procedures.

_____ The crane pedestal tubular and the internal bracketing shall be ABS Grade A or A-36 steel. However, the pedestal brackets between the deck and the outside of the pedestal shall be of ABS Grade AH36 (ASTM A131 Grade AH36).

_____ All steel shall be new and from mills approved by ABS. All steel shall be furnished with mill test records.

2.5 Welding and workmanship

_____ The barge shall be of all-welded steel construction built in accordance with the ABS Rules for Steel Barges, although the barge will not be classed. ABS requirements for welding and materials shall be followed, and high-quality welding and workmanship is expected. The IACS Recommendation 47, Shipbuilding and Repair Quality Standard - Rev.8 Oct 2017 shall be the basis for acceptable quality of construction.

_____ Welders shall be qualified in accordance with ABS requirements or those of AWS D1.1 and shall work under experienced supervision. Welder's certification shall be maintained on file and available for inspection by Owner's representative upon request.

_____ Welding procedures to be ABS approved or qualified in accordance with the requirements of AWS D1.1. Procedures to be maintained on file at the yard, available for inspection by Owner's representative upon request.

_____ All fillet welds to be double continuous and wrapped at the ends except stiffeners in dry voids may be intermittent fillet welds. All faying surfaces shall be seal welded. Minimum fillet weld size shall be 3/16".

_____ During welding, slag shall be removed routinely by chipping hammer or grinding. Finished welds shall be visually inspected with deficiencies remedied or repaired and any rough edges ground smoothed.

_____ All exposed surfaces and cut edges of steel shall be ground smooth and rounded to avoid sharp edges for paint adhesion.

_____ Proper weld sequencing shall be developed and followed to avoid significant thermal distortion during welding particularly with regard to stiffened plate panels.

_____ All seams in the outer shell of the hull shall be full penetration welds subject to ultrasonic testing to verify quality. Similarly, butt welds in all longitudinal members and elsewhere as shown on the drawings shall be full penetration welds, also subject to ultrasonic testing. Welds joining parts of the crane pedestal tubular shall be full penetration, subject to ultrasonic testing.

_____ All parts of the structure shall be inspected and shall exhibit good shipbuilding practice. Parts shall be in alignment and the workmanship shall be neat and of good appearance. Welding shall be complete and inspected with non-destructive testing in accordance with the requirements of the ABS rules.

2.6 Air Tests of completed compartments

_____ The watertight compartments shall be air tested to check for leaks and to check all butt seams in the outer shell and the bulkheads, deck and bottom plate to shell and bulkhead fillet welds prior to painting. Careful attention shall be focused as well on testing the bolted manway hatches.

3 Hull Outfitting

_____ Reference drawing 2018-060-01-04 Outfitting for details for some of the following.

3.1.1 Hull Marks

_____ Hull marks shall be outlined by intermittent weld beads and to be painted white. Details of vessel's name and home port to be supplied by the Owner. Markings to be provided at bulkhead locations and tank corners as required to permit under-water survey. Draft marks to be at the bow port and starboard and at the stern, port and starboard.

3.1.2 Bottom Plug

_____ Each tank and void which is connected to the vessel's bottom to be fitted with one (1) threaded bottom plug approximately 1-½-inches in diameter at the outside of the bottom plate. The bottom plug to be of stainless steel (SUS316).

3.1.3 Corrosion Protection

_____ Corrosion protection shall be by high quality coatings of all steel inside the barge and out along with sacrificial anodes on the immersed shell. Coatings are specified in Section 5 of this specification.

_____ A total of 110 zinc anodes, to ASTM B418 Type 1, shall be distributed over the bottom, sides, and ends of the immersed hull. Of these approximately 96 shall be distributed across the bottom in an array of 6 wide by 16 long, five anodes near the corner of the bilge along each side, and 2 along each end. Anode weight shall be 22 lb (10kg) each.

Contractor shall perform independent cathodic protection design to verify the anode quantities presented.

_____ Anodes shall not be located adjacent to bulkheads to provide area for docking blocks during construction and subsequent drydocking.

_____ The anodes on the underwater portion of the hull shall be attached by welded studs and nuts, to allow replacement by a diver with the barge in the water.

3.1.4 Mooring Fittings

_____ Mooring chocks, fairleads, kevels and bitts shall be provided in accordance with the General Arrangement and as required for proper mooring of the crane barge. Only closed chocks shall be provided. All fittings shall have a safe working load of at least 50 kips. The safe working load shall be marked in weld bead on the top surface of the fitting.

_____ Reinforcing foundations shall be installed during the construction sequence to provide adequate strength to the deck to support the mooring fittings. The foundation structure shown on the drawings may require adjustment to accommodate the dimensions of fittings actually procured. Contractor shall be responsible for the design modifications, which shall be submitted to the Owner for approval.

3.1.5 Recessed Hull Ladder

_____ Two (2) boarding ladders shall be provided, one forward, port, and one aft, to starboard, each comprised of rungs in cylindrical recesses in the side shell plating. Each ladder shall extend from above the bottom plating up to the main deck. The recesses shall be 8-inch schedule 80 pipe with type 316L stainless steel ¾-inch square bars.

3.1.6 Compartment Access

_____ One flush manhole with steel cover shall be provided for each compartment, with one vertical ladder inside at each manhole. Openings shall be 24” x 18” and covers shall be flush-type bolted steel cover with gasket. Manhole arrangement shall be such that manholes are not impeded by timber decking, or access arrangements shall be provided to easily remove decking in way of manholes.

3.1.7 Towing Fittings

_____ Two towing padeyes and corresponding chocks shall be installed at the bow, port and starboard, for connection of a towing bridle. The towing bridle shall be provided by yard and should be 3 lengths of 45 ft each of 1-inch Grade 3 studless chain of 119,500 lb. minimum breaking strength to withstand the pull from towing the barge at 6 knots. Five 1-inch bolt type anchor shackles should be provided for connecting the bridle to the barge and together. Arrangement and installation of the towing fittings shall be designed by the Contractor and submitted for approval to the owner.

_____ A chock and bitts shall be installed at the bow on centerline. This may be used for short distance tows, for instance between sites around San Francisco Bay.

_____ Foundation structure shall be installed under deck to support the towing fittings.

3.1.8 Deckhouse

_____ A steel deckhouse approximately 16 ft long by 8 ft in width at the base of the crane pedestal shall be fabricated of stiffened ¼ inch plate. The house will enclose the fuel tank on the aft side and provide additional secure storage on the forward side. The purpose of the house is to keep unauthorized people out of the fuel tank area and the storage area when the barge is untended. Contractor shall confirm that the plan area of the deckhouse as shown on the General Arrangement is sufficient to enclose the fuel tank to be purchased.

_____ The house should not be welded to the crane pedestal – rather there shall be a rain-guard arrangement to prevent the entry of water into the house but avoid having the house rigidly attached to the crane pedestal. Rain guard should be fabricated in two halves, bolted together and sealed against the pedestal with rubber gasket material.

_____ At the aft side of the house, there shall be doors that can be opened to allow installation of an owner furnished 1000-gal double wall fuel tank (nominal 91 in. wide) and to remove it should that be required. The doors shall be provided with a securing mechanism per the Owner's design.

_____ At the sides, approximately 1 ft aft of the forward side of the house, 6-dog weathertight doors shall be installed, one port and one starboard. These shall be provided with a securing mechanism per the Owner's design as described in an addendum to be forwarded.

_____ Detailed design of the deckhouse shall be developed by Contractor and the design shall be submitted to the Owner for review and approval.

3.1.9 Crane Boom Rest

_____ A crane boom rest shall be fabricated of steel tubulars and shapes as shown on the drawings. The top of the boom rest structure comprises a horizontal section of wide-flange beam with guides each side of steel plate, and the inside of this shall be lined with 4-inch thick oak boards or suitable alternative to provide cushioning and an even bearing surface for the crane boom. Note that the boom rest design must be adjusted depending on the model crane procured. Design changes to the boom rest to accommodate the actual boom shall be submitted to the Owner for approval.

_____ The port and starboard sides of the boom rest structure shall be outfitted with a ladder to provide access to the side running lights, as described in Section 3.1.12 below entitled Navigation Light Stands.

3.1.10 Crane Access

_____ A short platform with an inclined ladder and handrails shall be designed, fabricated, and installed to provide access to the crane from the main deck to starboard of the pedestal. The platform shall be of 1-inch thick and 1 ½ square mesh fiberglass grating of UV resistant composition with handrail(s) supported by steel angle or channel. The platform design including inclined ladder shall accommodate the actual crane purchased, and the design shall be submitted to the Owner for review and approval.

3.1.11 Containers and Container Securing Deck Sockets

_____ Three new standard 20 ft ISO containers shall be procured and installed on the deck to function as workshops and to provide secure onboard storage. These shall be secured to the deck with standard deck sockets and twist locks. The deck sockets shall be carefully laid out as shown on drawings to align with container corner castings. Chocks and brackets under deck of the deck sockets shall be installed to support the containers, as shown on the outfitting drawing. The doors shall be provided with a securing mechanism per the Owner's design as described in an addendum to be forwarded.

3.1.12 Navigation Light Stands

_____ Navigation lights stands (for the red and green side lights) shall be mounted to the crane boom rest. The navigation lights described in the electrical section shall be mounted per their manufacturer's instructions. The navigation lights shall be accessible by the ladder built into the legs of the boom rest, as described above under Boom Rest.

3.1.13 Timber Decking

_____ Over areas outlined on the General Arrangement and Outfitting drawings, 3x12 pressure treated timber decking shall be installed. Structural tees or angles shall be welded to the deck as shown, and fully painted before fitting the timbers for decking. The inboard-most and outboard-most boards of each row of timbers shall be secured by stainless steel screws through holes in the securing tees or angles. If the contractor desires to propose an alternate means to secure the timber decking, that means shall be clearly specified and submitted with the contractor's response.

3.1.14 Hydraulic Piping Protection

_____ Hydraulic piping for powering the winches to be run on deck and shall be protected by raised fiberglass grating supported on a framework on the main deck. Fiberglass grating shall be secured to the steel framing in accordance with manufacturer's specification, including stainless steel hardware.

_____ Fiberglass grating shall be 1" deep by 1 ½" square mesh of UV resistant composition. Walking surface on grating shall be non-skid.

_____ The electrical conduit leading aft shall be run in the same protective framework as shown on the outfitting drawing.

3.1.15 Fenders

_____ Tire fenders or suitable alternative (as specified and presented in the response) shall be provided on the port and starboard side to protect the hull against material barges alongside or the pier. Tire fenders approximately 24 inches in width and 3 ft in diameter shall be spaced to align with the web frames, approximately every 9 ft. Provided fenders are to be newly manufactured and not reconditioned. Padeyes shall be designed by the Fabricator, with design submitted to Owner for approval prior to installation.

4 Spud Piles and Rigging

4.1 Spud Pile Structure

_____ Please reference drawing 2018-060-01-03, “Spud Piles” for the description and details to follow.

_____ Two steel fabricated Spud Piles for stabilizing/holding the barge on location shall be fabricated with a total length of at least 80 feet. Each pile shall be fitted with a large-diameter sheave located near its tip for lifting and lowering. Particular attention to dimensional accuracy and squareness to be given to the spud piles during fabrication.

_____ The piles shall be fabricated of 24-inch by ¾” wall pipe rolled from steel plate with sections full-penetration welded together. Four steel equal-leg angles shall be welded longitudinally along their toes to each pipe to form a pile section that is 24-inches square. The angles are L8 x 8 x ¾ sections. All of this steel shall be ASTM A572 Gr 50 (50 ksi minimum yield strength) or similar.

_____ Each spud pile shall have a heavy-duty fabricated steel plate tip at its lower end, as shown on the drawing. The upper end of the piles shall have a heavy end plate complete with a lifting eye with capacity to withstand a pull of 100 kips.

_____ A 55-ton working-load limit (2 ½ inch nominal size) bolt-type galvanized shackle shall be provided for each spud pile. Further two synthetic (HDPE) or wire rope lifting slings, 10 ft in length and also 55-ton safe working load, shall be provided, one for each spud pile, for the purpose of lifting the spud pile with the crane, should the spuds become stuck in the mud or if the spud pile shall be lifted from barge for repair or maintenance. Each shall have eyes at each end through which the shackle may be passed.

4.2 Securing Pins

_____ Each spud pile shall have a locking pin fabricated of AISI 1018 steel round bar or similar, 3 ½ inches in diameter by 2 ft- 10 in in length, with yield strength approximately 50 ksi. The pins shall be tapered at one end and have a welded restraint at the other. A drilled hole shall be made at the tapered end to accept a ½” dia. bolt to lock the securing pin in place. When the pile is raised, the pin shall support the entire length of the pile (in air) plus an amount of entrained mud and water.

_____ The pins shall engage the spud pile at one of three locations. These three locking pin holes shall be of 4-inch dia. Sch 80 pipe welded into the pile body. The entrance to these shall be ground smooth to aid easy entrance of the pin.

_____ A fabricated holder shall be installed at each spud pile trunk to hold the securing pin prior to engagement with the spud pile. This support shall hold the pin at the elevation above the deck to guide it into the securing hole in the spud pile at the top of the spud pile well. The support shall be fabricated of mild steel and coated.

4.3 Pile Turning Sheave

_____ The spud piles shall each be outfitted with a turning sheave for the lowering and lifting wire rope. The sheave shall be provided in a purpose-built structural steel box complete with bushing and pin and guide rollers. The sheave and all components including pin, supporting box, and bearings, shall withstand the breaking strength of 1 1/8-inch diameter

IWRC EIPS wire rope with breaking strength of 130,000 lbs wrapped 180 deg around the sheave.

_____ The sheave shall be grooved for 1 1/8-inch diameter wire rope.

_____ The sheave and its steel structural box shall be of a design and construction that it can be immersed in salt water and Bay mud without detrimental effects on its performance.

_____ The sheave pin will be fitted with lubrication port and grease-tubes to enable the sheave pin to be lubricated remotely from the edge of the pile. The entire sheave unit shall be welded into the body of the spud pile during construction.

4.4 Spud Pile Rigging

_____ Each spud pile is lowered or raised using a winch on deck, from which the lowering wire then runs to a turndown sheave mounted on deck at the edge of the trunk, then down inside the trunk around the pile's turning sheave and then back up to the main deck through the trunk and terminating at a securing eye on the trunk.

_____ The lowering wire shall be 1 1/8-inch diameter EIPS IWRC wire rope (minimum breaking strength = 130,000 lbs). Approximately 500 ft of wire shall be provided on each winch.

_____ The wire end shall be fitted with a wedge socket termination, which is then connected to the termination eye at the trunk.

_____ Two vertical guide sheaves shall be installed by welding on the main deck to direct each spud pile lifting wire from the winch turning it down 90 deg into the spud pile well and then to the pile turning sheave. The units shall be designed for the breaking strength of 1-1/8-inch EIPS IWRC wire rope with minimum breaking strength of 130,000 lbs with 90 deg wrap on the sheave. The sheave grooves shall be hardened. Sheaves are to be mounted in a frame welded to the deck, and shall be fitted with grease-lubricated bushings or bearings that can be lubricated locally at the unit. The design shall allow for immersion in saltwater and Bay mud.

_____ The units shall be supplied with a 3-coat marine coating system applied, except that the area where the base of the units will be welded to the deck shall be masked with tape.

4.5 Spud Pile Winch Installation

_____ Two spud pile winches of 75,000 lb. pulling capacity shall be procured and installed. The specification for these winches is presented in Appendix 4.

_____ The winches shall be mounted on a foundation as shown in the Outfitting drawing that orients the winches so that one pulls forward and one pulls aft. The winches are to be installed at a location that is midway between the spud piles near midships of the barge. One winch faces forward to the forward spud pile and the other faces aft toward the aft spud pile.

_____ The spud pile winches shall be bolted to the foundation beams; note that the details shown may require modification based on the actual winch vendor design. Contractor shall develop the modified design and submit to the owner for approval.

_____ The control panel provided by the winch manufacturer or vendor shall be installed inboard of but near enough winches to see the raising and lowering of the spud piles. The control panel shall be mounted on an elevated platform approximately 4'-0" above the deck to

put the operator above the area of potential back lash should the lift wire break. This elevated platform shall incorporate a protective structure of 3-inch steel pipe fashioned into a protective cage. The elevated platform shall be accessed by a ladder, decking of 1" thick by 1-1/2" square mesh fiberglass grating, and have handrails around its perimeter. The Contractor shall design the platform and submit design to owner for review and approval.

5 Coatings

Fabricator shall prepare and coat all surfaces of barge when fabrication and all welding are complete. Color of barge to be black topsides from 3'-0" waterline up, red anti-fouling below 3'-0" waterline and bottom, and grey deck.

5.1 Preparation

The steel surfaces shall be cleaned of all grease or other foreign substances and prepared for coating as described. All sharp edges shall be rounded by grinding to sufficient radius for coating thickness. All welds shall be ground smooth and any arc strikes, temporary welds, or other damage shall be removed by grinding also. All steel surfaces to be coated to be cleaned and blasted to SSPC SP-10.

5.2 Coatings

The coatings listed below shall be procured and applied by Fabricator in accordance with paint manufacturer's recommendations. The coatings shown are manufactured by International Paint.

Area	Coating Description	Example Product	Color	DFT
Deck – nonskid	Two component epoxy coating containing a heavy-duty antiskid aggregate	Hempadur 85671 Hempadur Spray Guard 35490	Light red Grey	3 mils 100 mils
Deck – remainder (some with timber decking above)	High solids epoxy Abrasion resistant epoxy Polyurethane	Intershield 300HS Intergard 5377 Interthane 990	Bronze Black Grey	5 mils 5 mils 2 mils
Deckhouse and interior and three 20' Containers	Abrasion resistant epoxy Modified epoxy finish	Intershield 300HS Interfine 5703	Bronze Port Blue[1] (ext'r) White (int'r)	4 mils 3 mils
Hull topsides above waterline plus stern and bow areas	High solids epoxy	Intershield 300HS Intergard 5377 Interthane 990	Bronze Black Black	5 mils 5 mils 2 mils

Hull Wetted area (to be outfitted with zinc sacrificial anodes)	High solids epoxy High solids epoxy Antifouling	Intershield 300HS Intershield 300HS Interspeed 640 AF	Bronze Aluminum Red	5 mils 5 mils 5 mils
Interior of Voids and Fresh water ballast tanks	High solids epoxy High solids epoxy	Intershield 300HS Intershield 300HS	Bronze Light Grey	5 mills 5 mils

_____ 1. Port Blue: per PPG 1/48 point scale 96 line colorant:
_____ a. Thalo Green 8 -1/2 ounces per 5 gallons (D)
_____ b. Thalo Blue 16 -3/4 ounces per 5 gallons (E)
_____ c. Raw Umber ¼ ounce per 5 gallons (L)
_____ d. Titanium White 9 ounces per 5 gallons (W)

6 Electrical

6.1 Introduction

_____ The barge shall be powered by either an on-board 100kW 480V/3PH/60Hz diesel generator or shore power. Shore power may be either 208/3/60 three wire, 240/3/60 three wire, or 480/3/60 three wire. Depending on the source, shore power shall be converted to barge power 480/3/60 via transformers. The shore power transformer circuit breakers shall be mechanically interlocked so only one circuit may be energized at a time. Shore power shall be connected to barge circuit breakers with a portable cable whose length and size shall be determined later.

_____ The diesel generator and shore power circuits connect to an automatic transfer switch which will connect whichever source is available. If both circuits (generator and shore power) are available, the generator circuit will be connected. The automatic transfer switch shall be housed in a 316 stainless steel enclosure with its controls suitable for the environment.

_____ An additional circuit breaker shall be provided for an alternate diesel generator in case of a failure. This circuit breaker shall be mechanically interlocked with the diesel generator circuit breaker so both cannot be on at the same time.

_____ A 480/3/60 power distribution panel shall connect the power source (DG or shore power) to the air compressor, each Conex box, the deckhouse aft at the crane pedestal, and floodlights. Ground fault indicating lights and test pushbutton shall be provided.

_____ The air compressor shall be powered by 480/3/60 and shall have a dedicated circuit from the power distribution panel.

_____ 480/3/60 power shall be connected to the deckhouse aft. The interior of the deckhouse shall have a 480/3/60 power panel, a 480/120v three phase transformer, and a 120/3/60 power panel. Lights, duplex GFI outlets, and switches shall be connected to the 120v panel. GFI circuits shall be provided by GFI circuit breakers in the panel. Loads on the 480v panel shall be determined later. Ground fault indicating lights and test pushbutton

shall be provided for the 120v panels. Placement of panels and transformer inside containers and inside deckhouse shall be approved by Owner prior to installation.

_____480/3/60 power shall be connected to each Conex Box. The interior of each box shall have a 480/120v three phase transformer, and a 120/3/60 power panel. Lights, duplex GFI outlets, and switches shall be connected to the 120v panel. GFI circuits shall be provided by GFI circuit breakers in the panel. Ground fault indicating lights and test pushbutton shall be provided for the 120v panels. Placement of panels and transformer inside containers and inside deckhouse shall be approved by Owner prior to installation.

_____ Three floodlight circuits shall be provided, each with a floodlighting contactor in 316 stainless steel enclosures, and a common floodlighting control switch near the boarding location. Additional walkway lighting is not required. Switches for the forward floodlights shall be located inside one of the three containers. Similarly, switching for aft floodlights shall be located inside the aft deckhouse, location to be approved by Owner for both installations.

_____ Floodlighting power distribution shall utilize GUA cast junction boxes with threaded hubs.

_____ All cable penetrations into enclosures shall be from below (except for the Conex boxes and the aft deckhouse which may be through the side) and shall utilize threaded bubs and metallic cable glands for watertight integrity.

_____ All cables shall have aluminum or bronze armor and shall be routed on cableways made with stainless steel cable ladders at least 12 inches above the deck and 12 inch rung spacing. Horizontal cableways along the main deck shall be covered with removable bolted sections

_____ Solar-charged battery-powered running lights meeting Coast Guard requirements shall be installed.

6.2 Generator

_____ A 100-Kw diesel generator shall be procured, installed onboard, connected to electrical system, and tested. The diesel generator shall be self-contained with integral fuel tank, radiator, starting battery and alternator. See Appendix 1 for Purchase Specification for generator.

6.3 General

_____ All recommended practices of ABS, USCG, and IEEE-45-2002 Recommended Practice for Electric Installations on Shipboard are deemed requirements of this Specification. All work shall conform to the latest U.S. Coast Guard, ABS Rules, and the Supplement. Electrical installations and/or modifications called out in the Specification shall be made in accordance with the requirements set forth therein.

_____ All required equipment not listed as Owner furnished shall be Contractor furnished and installed.

_____ The Contractor shall provide vendor data of all Contractor-furnished equipment in the Data Book described in Section 10, Barge Documentation.

6.4 Cable & Cable Installation

_____ Cables shall be installed in Cableways in compliance with ABS, USCG, and other applicable Regulatory Body Requirements.

_____ Electrical cables shall meet ABS requirements, including flammability and bunched flammability criteria. Power cables shall have a 90°C operating temperature. All cables shall be properly selected for their intended purpose. Cables shall be run as directly as practicable, consistent with adequate ventilation of the cable wire ways, and with due care in the avoidance of hazardous or otherwise undesirable locations.

_____ Cables for controlling or monitoring analog or thermocouple signals shall be shielded. Shielding shall be connected to hull potential (PE) only at the one end.

_____ Cables, insofar as practicable, shall not be installed in locations exposed to weather. Cables for weather deck mounted fixtures and equipment shall be installed on the inside surface of house structures supporting such fixtures and equipment.

_____ Cables in crew areas shall be concealed wherever practical. Cabling shall be neatly formed and installed in a workmanlike manner, giving particular attention to appearance.

_____ All cables shall be continuous between outlet boxes, connection boxes, switchboards, panel boards, etc. They shall enter the box and shall be secured by a clamp or connector to assure a good electrical connection between the cable armor, where fitted, and the box and wiring device, or the cable armor may be electrically connected to the enclosure by means of a suitable clamp or strap.

_____ Cable entry into electrical equipment in exposed areas shall generally be from below unless otherwise noted. At specific locations, where cable entry from below is impractical, cable entry from another direction shall be the subject of approval by the Owner.

_____ The cross-sectional areas for power cables shall be dimensioned according to the load table of the classification society, assuming an ambient temperature of 40° C, and an ambient temperature of 50° C in engine spaces.

_____ The minimum cross-sectional area for single and multi-core cables and lines shall be:

_____ 1.5 mm2 or larger – power & lighting

_____ 1.0 mm2 or larger – control and monitoring

_____ 0.75 mm2 or larger–thermocouples, or shielded instrumentation

_____ Combining alternating current (AC) and low voltage DC control and monitoring signals within the same multi-core cable is prohibited as is combining control and power cabling in the wireway.

_____ Cables may be connected in parallel, when the individual conductor cross sectional area is greater than 50 mm2.

_____ Control and monitoring cables to sensors, remote distribution panels, or to main processors, shall be segregated from power and lighting cables by at least 50 mm, or as otherwise approved by the Owner.

_____ Cable splicing shall not be allowed unless specified for a particular piece of equipment. Where required, the splice shall meet the ABS requirements in 4-8-3/9.19 and 4-8-4/21.23. The splice shall stagger the connections of each conductor. The splice kit shall provide for a watertight connection that incorporates crimped conductor connections, epoxy resin, and heat shrink jackets. Taping is not an acceptable alternative.

_____ Where cables pass through areas where they may be damaged, they shall be protected by stainless steel pipe or other Owner-approved conduit. Cables running along the deck shall be run-in stainless-steel conduit along the hydraulic pipe-way.

_____ Connection of ships cables shall use crimp lugs, bolts, nuts, and lock-washers. Any sharp edges on these connections shall be filled with electrical insulation putty (such as ScotchfilTM Electrical Insulation Putty) and then taped using Scotch 33 tape or better, or equivalent.

_____ Connection of ship's cables to equipment with incoming circuit breakers shall be connected to the line side of the circuit breakers.

_____ Connection of ship's cables to 110- or 220-volt lighting fixtures or low voltage monitoring sensors, may be lugged or may employ "scotch-lock" type twist-on type connectors.

_____ Any damage to the cable outer jacket that occurs during cable installation shall be repaired by using a repair kit specifically designed for such purpose. Taping the cable jacket will not be acceptable. Where installation damage affects the conductor or conductor insulation, the entire cable shall be replaced.

_____ Connection of ship's cables by twisting together and taping is strictly prohibited. Removing strands from wire to fit a smaller lug is also prohibited.

_____ Where cables are oversized to suit voltage drop conditions and cannot easily be connected to light fixtures or convenience outlets, a jumper wire of smaller size can be used to connect the fixture or outlet to the larger cables to the fixture. The jumper must be lugged on both ends and made with a bolted splice inside of the fixture or outlet enclosure. The jumper wire must be sized to be adequately protected by the circuit breaker feeding the oversized cable.

_____ A single layer of cables shall rest on one hanger except that a second layer of smaller cables may be installed to fill in between larger cables to facilitate strapping of cables. If an additional layer of cables is required, it shall be supported on a second hanger bracketed at sufficient distance from the first to permit painting and inspection.

6.5 Cableway & Penetrations

_____ Where cables pass through watertight/gastight decks and bulkheads, the penetrations shall be through multi-cable transit devices, RISE system, or threaded stuffing tubes. RISE and stuffing tube arrangements shall have the pipe extend at least 100 mm (4") above and 50 mm (2") below deck or insulation, and may need to be extended to accommodate A-60 or other fire boundary requirements. Where multi-cable transit devices or RISE systems are utilized, at least 20% spare space shall be provided for the future installation of cables.

_____ Where cables pass through non-watertight non-gastight bulkheads, decks, or platforms, the openings shall be fitted with collars which extend at least 100 mm (4") above/below platforms and decks, and at least 50 mm (2") from the surface of each side of bulkheads. If cables are to lay against the collar, a rubber or other softener shall be placed between the cables and the collar to prevent chafing.

_____ Where cables penetrate weather decks with kickpipes, stainless steel kick pipes and stuffing tubes shall be installed that extend at least 250 mm (10") above the deck.

_____ Where single core cables penetrate equipment enclosures, bulkheads, or decks, cables for phases A/B/C must be routed through the same penetration. If this is not possible, single core cables must pass through non-magnetic materials.

_____ All electrical cable to deck mounted motors and controls exposed on deck shall be adequately guarded the full run from deck to terminal box with pipe or other substantial protection.

_____ Cable supports shall be spaced not more than 300 mm (12”) on horizontal and 500 mm (20”) on vertical runs

_____ Steel hanger or flat bar not less than 5 mm (1/4”) thick with corrosion resistant finish shall be used for all cable hanger material. Painting shall be acceptable as a corrosion resistant material for interior locations. Stainless steel shall be used for weather deck and other wet locations. Bolts, nuts, and washers are to be cadmium plated for interior use and are to be stainless steel or bronze for exterior use.

_____ Attachments to watertight bulkheads or decks by means of rivets or bolts penetrating the bulkhead or deck is not permitted. Studs or steel framing welded to the bulkhead or deck shall be used for mounting supports. Mounting of equipment on shell plating is prohibited.

_____ Horizontal cableways on deck shall be protected over their entire length by a removable steel cover at least 5mm thick to protect against damage.

_____ Local runs of cable between cableways and devices may be supported by weld stud hangers or minimum 25mm flat bar, with maximum spacing of 500 mm (20”) between supports.

_____ Cables shall be strapped, with stainless steel band straps at least 12 mm (1/2”) wide to every fourth hanger on horizontal runs and every hanger on vertical or bulkhead runs. Where cables are supported by the strapping, they shall be strapped on every hanger.

_____ Cableways in cargo spaces or where stores and spare parts are handled shall be suitably protected where mechanical injury might occur. Cableways in cargo spaces shall not interfere with the existing clear height.

6.6 Identification

_____ All electrical equipment shall be fitted with identification plaques that identify the equipment and the circuit from which it is powered. The plaques shall be lamicoid type, black phenolic plastic with white engraved lettering.

_____ All new cables shall be fitted with cable identification tags, which indicate the circuit number of each cable, at each cable end, and at each junction or terminal box. Tags shall be stamped aluminum and shall not be painted.

7 Mechanical

_____Mechanical systems on this barge include diesel-powered electrical generator, compressed air system, and hydraulic power system. Contractor shall procure, install, test and commission each piece of equipment described herein. The generator is further discussed in the Electrical section.

7.1 Compressed Air

7.1.1 Air Compressor

_____ A 185 CFM electric air compressor for driving air tools shall be procured, installed, connected to electrical system, and commissioned and tested. See Appendix 2 for Purchase Specification for air compressor.

_____ The air compressor shall be installed on a structural foundation designed by Contractor for the particular equipment procured. It should be located forward of the three Conex boxes on deck as shown on the General Arrangement and the Outfitting drawings. Design of the foundation shall be submitted to the Owner for review and approval.

_____ An air receiver of specified capacity shall be installed on its foundation as required. Contractor shall design and build appropriate foundations for the equipment procured; design of foundation shall be submitted to owner for review and approval.

7.1.2 Piping

_____ Piping for compressed air shall comprise stainless steel schedule 40, type 316 piping and fittings.

7.2 Hydraulic Power

7.2.1 HPU

_____ A diesel-powered hydraulic power unit for powering the hydraulic spud winches and possibly the tuggers shall be procured, installed, connected to hydraulic system, and commissioned and tested. The HPU shall output 145 GPM at 3000 psi or alternatively as required to power the winches supplied. See Appendix 3 for Purchase Specification.

_____ HPU shall be installed on a structural foundation designed by the Contractor for the particular equipment procured. Foundation design to be reviewed and approved by Owner. It shall be located forward of the three Conex boxes on deck as shown on the General Arrangement and the Outfitting drawings.

7.2.2 Hydraulic Piping

_____ All hydraulic power supply piping above ½" diameter for supply shall be Schedule 80 ASTM A312 type 316L. All piping fittings shall be socket welded type with minimum working pressure of 3000 psi. Welding of pipe and fittings to be in accordance with ABS Rules for Materials and Welding, latest edition. Pipe to be made up with a minimum of welded connections.

_____ The low pressure return piping shall be Schedule 40 ASTM A312 type 316L. Fittings for return piping shall be socket welded stainless-steel type 316L Class 3000 lb.

_____ Supply and return lines may be prepared in spools joined by stainless steel (type 316) SAE flanges with buna-n rubber O-ring seals. For supply piping, Code 62 flanges shall be used. For return piping, Code 61 flanges shall be used.

_____ After completion of all welding, pipe spools shall be cleaned, pickled and passivated using a procedure suitable for the pipe and flanges procured, in accordance with ASTM A380 "Standard Practice for Cleaning, Descaling, and Passivation of Stainless-Steel Parts,

Equipment, and Systems". This will remove extraneous iron or other foreign materials and restore the passive coating and resistance to corrosion.

_____ Any stainless-steel tubing required shall be Type 316 with a minimum 2.5% Mo. Fittings shall be rated for the working pressure.

_____ Piping shall be mounted on the main deck as shown in the Mechanical Arrangement drawing and secured with Heavy Duty pipe clamps with elastomeric insets to secure high-pressure pipe. The bottom plate of the clamp is to be welded to the deck or to a doubler plate in accordance with Mechanical Plan or outfitting drawing prior to paining of the hull.

_____ After installation onboard, but before connection to HPU and winches, all pipe and tubing shall be pressure tested to 1.5 times its rated pressure and held for 5 minutes or as necessary to allow complete inspection of the pipe connections for leakage. The length of the pipe shall be inspected for leaks during this time.

_____ Once the pipe passes the pressure test, it shall be connected to pumps and hydraulic fluid shall be circulated and filtered with returns monitored until Cleanliness Level 3 per SAE 4059 (less than 10 microns) or to the level required by the HPU pumps or the winches (if less than Level 3) is achieved.

_____ The HPU shall be connected to the hydraulic piping with hoses rated for 3000 psi working pressure and for flammable fluid service required by ABS Rules MVR 4-6-7/3 Hydraulic Oil Systems. Similarly, the winch controls shall be connected to the piping and to the winches by similar hoses.

_____ After the pipes are installed, protective ramps or grating shall be fit over the pipes as shown on the Outfitting plan and secured in place.

7.3 Winches

_____ Two 75,000 lb. capacity and four 12,000 lb. capacity powered winches shall be procured and installed along with their controls.

_____ The two 75,000 lb. capacity hydraulic powered winches are for lifting and lowering the Spud Piles and shall be of Rapid Reverse design to facilitate spud pile installation. See Appendix 4 for the procurement specification for these. These winches shall be installed on a structural foundation on the port side between the spud well trunks.

_____ The four 12,000 lb. capacity winches (tuggers) are for use in moving the barge along an existing pier or wharf. These winches may be supplied with a hydraulic, pneumatic or electric drive to provide the lowest total installed system cost. See Appendix 6 for the procurement specifications for these winches. These winches shall be installed near the four corners of the barge on structural foundations as shown in the outfitting drawing.

_____ Installation of all winches shall be as shown on the General Arrangement and the Mechanical Plan.

_____ All hydraulic power supply piping will be 3000 psi. Winches shall be supplied from vendors with all controls and pressure regulation required for proper winch operation.

_____ All hydraulic winch controls shall be connected to the pressure and return piping with hoses as discussed above under Hydraulic Power.

7.4 Not Used

8 Mooring

_____ Mooring equipment shall be installed on the barge for the purpose of securing the vessel to piers and to allow the barge to be moved along piers for repositioning.

8.1 Not Used

8.2 Tugger Winches

_____ Four powered tugger winches shall be installed and connected to the barge ancillary systems as required. These tuggers shall be locally controlled and have a rated capacity of 12,000 lb. See Appendix 6 for purchase specification for Tugger Winches.

_____ The tugger winches shall be mounted on a foundation just above the main deck to provide clearance for mooring wires (if installed in the future). The foundation design may require modification by the Contractor to accommodate the fairleads purchased. Changes shall be submitted to the owner for review and approval.

8.3 Not Used

8.4 Not Used

8.5 Anchors and Chain

_____ Two 1500 lb Stockless anchors shall be provided complete with anchor shackle and padeye on the crown for a pendant line. The anchors shall be supplied with the appropriate anchor shackle, swivel, and joining shackle to connect to chain. 200 ft of ¾-inch Grade 3 or equivalent studless anchor chain shall be provided for each anchor. All components shall be connected to verify they fit together easily before shipping.

8.6 Not Used

8.7 Appurtenances

_____ Contractor shall design and install two anchor and chain storage plates and bin to be mounted on deck at the forward corners of the barge for the purpose of securing the anchors and chain when not in use. The plates shall be designed to allow the anchor(s) to be released and to fall into the water in the case the barge must be anchored. The bitter end of the anchor chain shall be secured with a shackle to a padeye welded to the deck. The padeyes and connections shall be arranged such and of sufficient strength to withstand sea fastening loads from the anchors and chains during ocean transit of the barge.

_____ Arrangement and design of storage plates, bins, and padeyes shall be reviewed by Owner's representative before construction.

9 Crane Procurement, Installation and Testing

_____ The crane to be installed on the barge shall be procured, transported, installed commissioned, and fully function tested. Purchase specifications for the crane are presented in a separate document.

_____ The Contractor shall procure the crane, provide supervision necessary during the manufacturing process, and then transport and receive the crane for installation at its yard. Contractor shall arrange for any support from the crane manufacturer necessary for the erection and installation process.

_____ For the crane, load charts shall be prepared that present the lifting limits at each radius including the crane structural limits, the lifting wire limits or the barge stability limits. All lift cases shall include wind speed of 40 knots. Intact stability shall satisfy the basic ABS deck barge criterion, the crane barge criteria, and the USCG crane barge criteria all for sheltered water operations.

_____ After the crane is installed onboard the barge, and fully rigged and commissioned, it shall be fully tested to ensure all functions operate as specified and in accordance with manufacturer's operating procedures prior to acceptance by the owner. Crane manufacturer shall certify that crane has been installed, commissioned and tested in accordance with their procedures and performs according to their specifications after installation. As part of the testing and commissioning procedures, Contractor shall have the crane inspected and tested by a certified agent to ensure compliance with State of California Department of Industrial Relations and OSHA requirements.

10 Barge Documentation

_____ A full set of as-built documentation shall be assembled and submitted to the owner upon delivery of the barge. This documentation shall include the full set of records for the hull fabrication and integration and documentation covering all of the purchased fittings and equipment installed on the barge.

10.1 Barge Hull Construction Documentation

_____ Barge hull documentation shall include as-built drawings with final scantlings and arrangements, final inspection reports, material certificates, coating inspection records, final test reports, final weight reports, results of the inclining experiment, trim and stability booklet, and any other relevant documentation.

10.2 Equipment and Fitting Documentation

_____ Operating and maintenance manuals shall be assembled by the Contractor covering all purchased fittings and equipment, and the crane. The documentation shall include original manufacturers' data and operating procedures and maintenance recommendations and procedures. Three volumes are envisioned, 1) a data book, 2) an installation and maintenance manual, and 3) an operating manual.

10.2.1 Data Book

_____ The Data Book shall include equipment cut sheets, dimensioned arrangement drawings, parts lists, assembly drawings, component material descriptions, securing details, and

details of interfaces with the barge piping, electrical power, and structural systems for all purchased equipment and fittings. Any certifications and approval documents for each piece of equipment shall be included in the data books.

10.2.2 Installation and Maintenance Manual

_____ Installation and maintenance manual shall include instructions and procedures for installing, commissioning and maintaining each procured piece of equipment.

10.2.3 Operating Manual

_____ The operating manual shall include detailed instructions, procedures, and warnings for the safe operation of each piece of equipment installed on the barge.

10.3 Submittals

_____ Draft versions of each manual shall be submitted to the Owner for review and approval one month before delivery of the completed barge. The Owner will provide feedback two weeks prior to final acceptance testing of the barge.

_____ Four hard copies and one electronic copy of each manual shall be furnished to the Owner on final acceptance of the barge.

_____ One hard copy and one electronic copy of as-built drawings of the barge shall likewise be furnished to the Owner on final acceptance of the barge.

11 Owner Furnished Equipment

_____ No owner furnished equipment will be provided.

12 Warranty***

_____ Contractor shall warrant that the completed barge and all installed equipment (including crane) will comply with the requirements of the Contract Documents, as integrated in the City-approved final 100% design. The crane shall be further warranted by the Crane Vendor as described by the separate warranty clause in Section 3, Pedestal Crane, Subsection 4.5.4. Failure to conform to the requirements of the Contract Documents, as integrated in the City-approved final 100% design shall obligate Contractor to repair or replace the equipment at their sole cost. The warranty, as a minimum, shall cover all defects in and/or from: engineering, design, manufacturing, materials, corrosion protection application / performance, and preparation for shipment and packing.

_____ Warranty period for the completed barge shall extend 12 months from final acceptance by owner at delivery in San Francisco Bay. All engineering, materials, workmanship, equipment, components, and other parts that make up the completed crane barge are covered by this warranty.

Appendix 1 – Generator Purchase Specification
Diesel Generator Set Requirements

_____ A diesel-powered electrical generator shall be procured to provide electrical power for the deck lighting, workshop lighting and outlets, for the air compressor, and for other miscellaneous electrical loads on the barge. The engine and generator shall be unitized on a steel skid suitable for lifting and securely support the equipment on the deck of the barge. The unit shall be installed on deck in an area open to the elements.

_____ Vendor shall be responsible for the design, construction, testing and performance of the unit to meet the requirements and conditions, and performance functions outlined herein and obtain any approvals required for the service described.

_____ Vendor shall provide a complete unit fully tested and ready for installation on the barge.

_____ The unit shall be protected from corrosion including coatings suitable for a marine environment and other means as may be necessary including suitable material selection.

_____ The unit shall meet at least the following requirements:

_____ Engine and generator to be unitized on a structural steel skid

_____ Engine to run on Renewable Diesel fuel meeting the requirements of ASTM D975 Grade No. 2D S15.

_____ Engine to be Certified by the Environmental Protection Agency (EPA) to conform to Tier 4 non-road requirements

_____ Engine shall be four cycle

_____ Engine to have a closed fresh-water cooling system air cooled by radiator.

_____ Unit Lifting arrangement to allow lifting diesel generator or generator or both

_____ Engine shall be electric start with battery recharging.

_____ Weather protected sound enclosure.

_____ Means to lock controls and enclosure to prevent vandalism.

_____ Integral circuit breaker

_____ Skid mounted fuel tank sized for approximately one day's (8 hours) running time

_____ Skid mounted cooling expansion tank

_____ Skid mounted drip pan under the engine

_____ All controls and instrumentation integrated on the skid.

_____ All gauges are to be liquid filled for vibration considerations

Performance Data

RATINGS

_____	Output:	100 kW
_____	Duty:	S1 (Continuous)
_____	Voltage:	480 VAC
_____	Frequency:	60 Hz
_____	Phase	3
_____	Power factor:	0.8
_____	Speed:	1800 rpm
_____	Battery Voltage	12 VDC

STANDARDS

_____ Applicable standard: IEC 60034, ABS

_____ Marine classification: ABS
_____ Hazardous area classification: None
_____ Temperature rise stator / rotor: A/A
_____ Insulation class: F (min.)

ENVIRONMENTAL CONDITIONS

_____ Ambient temperature: 104 deg F
_____ Minimum Temperature: 32 deg F
_____ Marine atmosphere

Engine Features

The prime mover shall be provided with the following:

_____ Engine to comply with requirements of ABS Steel Barge Rules Part 4
_____ Low oil pressure shutdown
_____ High engine temperature shutdown
_____ Vibration isolating mounts
_____ Personnel protection including belt guard, insulation on exhaust, and other as necessary
_____ Disposable oil filter
_____ Oil drain valve
_____ Integral drip-proof tray under engine
_____ Air heater circuit for cold starting
_____ Disposable fuel filter
_____ Overspeed air shutoff on engine

Typical engine instrumentation including at a minimum:

_____ Engine temperature
_____ Oil Pressure
_____ Engine revolutions
_____ Battery charging alternator voltage
_____ Engine operating hours

Alternator Features

The alternator shall be provided with the following:

_____ Brushless, rotating field design permits power to be obtained from stationary leads.
_____ Windings are vacuum impregnated with epoxy varnish for dependability and long life.
_____ Dynamically balanced rotors to minimize vibration.
_____ Copper windings to ensure minimal heat buildup. Insulation meets
_____ NEMA standards for class H insulation.
_____ Direct connected to the engine, the generator has sealed precision ball bearings with a precision-machined steel sleeve in the end bracket to prevent shaft misalignment and extend bearing life.
_____ Equipped with a four-lead reconnectable stator.

_____ Capable of sustained line-to-neutral short circuit current of up to 300% of the rated current for up to 2 seconds. (IEC 60092-301 short-circuit performance.)

Required Quotation Documentation

The following items are required to be included with the quotation and in the documentation to be provided on delivery:

_____ Dimensioned General Arrangement drawing showing:
_____ Plan, profile and section views
_____ Maintenance clearance envelopes
_____ Foundation mounting patterns
_____ Wet and dry weights
_____ Center of Gravity
_____ Installation, Commissioning, Operating and Maintenance Manual(s). Must include recommended maintenance interval schedule up to and beyond 120,000 hrs.
_____ Complete mechanical, electrical, and electronic technical specifications.
_____ EPA Tier 4 Certificate
_____ Bolt pattern or other detail of skid mounting to main deck foundation

Appendix 2 - Diesel HPU Purchase Specification

_____ A diesel-powered hydraulic power unit shall be procured to provide fluid power for operating the spud pile winches and possibly the tugger winches for installation on the barge. The engine, pump(s), and hydraulic fluid reservoir shall be unitized on a steel skid suitable for lifting and to securely support the equipment on the deck of the barge.
_____ Vendor shall be responsible for the design and performance of the unit to meet the requirements and conditions, and perform the functions outlined herein and obtain any approvals required for the service described.
_____ Vendor shall provide a complete unit fully tested and ready for installation on the barge.
_____ The unit shall be protected from corrosion including coatings suitable for a marine environment and other means as may be necessary including suitable material selection.
_____ Performance specifications for each of the consumers are provided in this specification.

Diesel HPU Requirements

The overall unit shall include the following features:

_____ Engine and generator to be unitized on a structural steel skid
_____ Engine to run on Renewable Diesel fuel meeting the requirements of ASTM D975 Grade No. 2D S15.
_____ Engine to be Certified by the Environmental Protection Agency (EPA) to conform to Tier 4 non-road requirements
_____ Engine shall be four cycle, directly coupled to hydraulic pump(s)
_____ Closed cooling system/radiator cooled.
_____ Lifting arrangement for each piece of equipment and for entire skid
_____ Engine shall be electric start complete with alternator for battery recharging.
_____ Unit shall be provided with weather protected sound enclosure.

_____ Skid mounted fuel tank, sized for approximately one-half day (4 hours) running time
_____ Skid mounted hydraulic fluid tank with sufficient volume for expansion and with means to cool the hydraulic fluid (if necessary).
_____ Skid shall have spill containment (with drain fitted with a ball valve) for entire hydraulic fluid reservoir. A drip pan shall also be provided for engine drips.
_____ All controls and instrumentation integrated on the skid.
_____ All gauges are to be liquid filled for vibration considerations

Performance Data

RATINGS

_____	Output:	275 HP (approximate, to be verified by vendor)
_____	Press:	3000 PSIG
_____	Flow:	145 GPM
_____	Duty:	S1 (Continuous)
_____	Battery Voltage	12 VDC

STANDARDS

_____ Marine classification: ABS

ENVIRONMENTAL CONDITIONS

_____ Ambient temperature: 104 deg F
_____ Minimum Temperature: 32 deg F
_____ Marine atmosphere

Engine Features

_____ Engine to comply with requirements of ABS Steel Barge Rules Part 4
_____ Low oil pressure shutdown
_____ High engine temperature shutdown
_____ Vibration isolating mounts
_____ Personnel protection including belt guard, insulation on exhaust, and other as necessary
_____ Disposable oil filter
_____ Oil drain valve `
_____ Mounted on a drip-proof tray
_____ Air heater circuit for cold starting
_____ Disposable fuel filter
_____ Overspeed air shutoff on engine

Typical engine instrumentation including at a minimum:

_____ Engine temperature
_____ Oil Pressure
_____ Engine revolutions
_____ Alternator voltage

_____ Engine operating hours
_____ All gauges are to be liquid filled

Appendix 3 – Air Compressor Purchase Specification

_____ An electric-powered variable-speed rotary-screw air compressor shall be procured to provide compressed air to drive construction tools for the performance of Port maintenance activities from the barge. The air compressor shall be a packaged unit suitable for lifting and to securely support and contain the compressor and equipment on the deck of the barge. The unit shall be installed on deck in an area open to the elements.
_____ Vendor shall be responsible for the design, construction, testing and performance of the unit to meet the requirements and conditions, and perform the functions outlined herein and obtain any approvals required for the service described.
_____ Vendor shall provide a complete unit fully tested and ready for installation on the barge.
_____ The unit shall be protected from corrosion including coatings suitable for a marine environment and other means as may be necessary including suitable material selection.

Air Compressor Requirements

The air compressor shall meet the following requirements:

_____ Electrical power available will be 480V, 3 Phase, 60Hz AC
_____ Lifting arrangement for compressor shall be provided
_____ Unit shall be in weather protected low sound enclosure.
_____ NEMA TEFC Drive motor
_____ Flexible drive coupling
_____ Dust filter on air inlet to be provided
_____ Skid mounted storage tank (receiver) of approximately 120 gallons
_____ Unit mounted controls and instrumentation including:
_____ Start/Stop
_____ Load/Unload
_____ Emergency Stop
_____ Shutdowns for high outlet air temperature
_____ Shutdown for high inlet air temperature
_____ Delivery Air Pressure
_____ Delivery Air Temperature
_____ Oil fill level
_____ All gauges to be liquid filled

Performance Data

RATINGS

_____ Output: 185 SCFM
_____ Pressure: 125 PSIG
_____ Receiver: 120 GALLONS
_____ Duty: S1 (Continuous)

STANDARDS

_____ Marine classification: ABS
_____ Hazardous area classification: None
_____ Ambient temperature: 104 deg F

Required Quotation Documentation

The following items are required to be included with the quotation:

_____ Dimensioned General Arrangement drawing showing:
_____ Plan, profile, and section views
_____ Maintenance clearance envelops
_____ Foundation mounting patterns
_____ Wet and dry weights
_____ Center of Gravity
_____ Installation, Commissioning, Operating and Maintenance Manual(s). Must include recommended maintenance interval schedule up to and beyond 120,000 hrs.
_____ Complete mechanical, electrical, and electronic technical specifications.
_____ Details for package mounting unit to main deck

Appendix 4 - Spud Pile Winches

_____ Two hydraulic winches, each with a 75,000 lb. pulling capacity on the first layer of rope, shall be procured, ready for installation on the deck of the barge. The package shall be complete with all controls to wind in or let out the cable to raise or lower each of the two spud piles independently.

_____ Vendor shall be responsible for the design and performance of the units to meet the requirements and conditions, and perform the functions outlined herein and obtain any approvals required for the service described.

_____ Vendor shall provide complete unit including control panel with all controls for both winches, fully tested and ready for installation on the barge.

_____ The unit shall be protected from corrosion including coatings suitable for a marine environment and other means as may be necessary including suitable material selection.

Features of the winches

The following outlines the Performance specifications for the spud pile winches and features with which they shall be provided.

Line pull vs speed shall be as follows:

	Line Pull	**Pull in speed**	**Pay out**
_____ Pay in line pull and speed first layer	75,000 lb.	72 ft/min	298 ft/min
_____ Pay in line pull and speed Mid Drum	58,400 lb.	100 ft/min	415 ft/min
_____ Pay in line pull and speed top layer	41,750 lb.	125 ft/min	535 ft/min

Note: Payout speed shall be approximately four times the pay-in speed to facilitate rapid deployment of the spud pile.

_____ Winch Drum shall be a maximum of 20 inches wide and shall be able to hold over 700 ft of 1-1/8-inch wire rope. Drum shall have a cable anchor to secure the end to prevent slippage with 5 wraps of wire rope remaining on drum.

_____ Winch shall be supplied with 500 ft of EIPS IWRC 1 1/8-inch wire rope with minimum breaking strength of 130,000 lb.

_____ The winch shall have a hydraulically released static/dynamic brake. The brake shall support the maximum rated load when no hydraulic power is applied. Upon application of hydraulic pressure to the motor, brake shall release automatically, and reengage when pressure is released.

_____ Winch shall operate at 3000 psi supply pressure at 142 gpm flow

_____ Speed control shall be performed by throttling spool control valve

_____ 3-coat paint system for marine equipment

Controls

_____ The winch vendor shall provide a control panel complete with all necessary flow control and pressure regulation required for proper operation of the winch. Hydraulic pressure supply of 145 gpm at 3000 psi will be provided as will return to tank at approximately atmospheric pressure. Any additional hydraulic fluid supply and return functions required for the proper function of the winch shall be made at the control panel. All control valves to operate the winches shall be mounted at the panel. Pressure gauges showing supply and return pressure (at a minimum) shall also be installed on the panel.

_____ The control panel shall place the control valve levers at a comfortable operating height (approximately 30 inches, or as agreed with owner).

_____ The control panel shall be connected to the supply and return piping on deck with hoses. The connection to the supply piping shall be by Code 62 SAE-type flanges with buna-n O-rings. Both the hose flange and the counter flange to be installed on the hydraulic piping shall be provided by the winch and controls vendor. The flanges shall be as specified on the Mechanical Arrangement drawing. The hose to the supply and return deck piping shall be of sufficient length to reach the control panel mounted on a platform elevated 4 ft above the main deck and the piping connections.

_____ In addition to being manually controlled, the control valve shall be remotely controlled as well by a wireless controller allowing the operator to be positioned in a safe location with good visibility. Details of remote control to be submitted with response.

_____ Hoses required for connecting the control panel to the winches shall likewise be provided by winch vendor. Hoses included shall be suitable for flammable fluid service as required by ABS Rules MVR 4-6-7/3 Hydraulic Oil Systems.

Required Quotation Documentation

The following items are required to be included with the quotation:

_____ Dimensioned General Arrangement drawing showing:

_____ Plan, profile, and section views

_____ Maintenance clearance envelops
_____ Foundation mounting details
_____ Wet and dry weights
_____ Center of Gravity
_____ Installation, Commissioning, Operating and Maintenance Manual(s). Must include recommended maintenance interval schedule up to and beyond 120,000 hrs.
_____ Complete mechanical, electrical, and electronic technical specifications.
_____ Details for package mounting unit to main deck
_____ Details of Controls including for manual controls and remote controls

Appendix 5 –Not Used

Appendix 6 – Tugger Winch Purchase Specification

_____ Four powered winches, each of 12,000 lb. nominal pulling capacity on the first layer of rope shall be provided complete with control valve ready for installation on the deck of the barge. The winches shall be mounted in each of the four corners of the barge to provide the ability to move the barge alongside a pier, or to adjust the position of a material barge moored alongside.

_____ Vendor shall be responsible for the design and performance of the unit to meet the requirements and conditions, and perform the functions outlined herein and obtain any approvals required for the service described.

_____ Vendor shall provide complete units including control panels with all controls, fully tested and ready for installation on the barge.

_____ Vendor shall perform an evaluation of the best powering solution for the winches with hydraulic, pneumatic, or electric drive and determine which solution offers the best cost effectiveness considering the cost of unit procurement and cost of installation.

_____ The units shall be protected from corrosion including coatings suitable for a marine environment and other means as may be necessary including suitable material selection.

Features of the winches

The following outlines the Performance specifications for the tugger winches and features with which they shall be provided.

Line pull vs speed shall be as follows:

	Line Pull	**Pull-in/Pay-out speed**
_____ Pay in line pull and speed first layer	12,000 lb.	104 ft/min
_____ Pay in line pull and speed Mid Drum	9,660 lb.	138 ft/min
_____ Pay in line pull and speed top layer (6th Layer)	7,319 lb.	172 ft/min

_____ Winch Drum shall be a maximum 10 inches wide and shall be able to hold a minimum of 222 ft of 5/8-inch wire rope. Drum shall have a cable anchor to secure the end to prevent slippage with 5 wraps wire rope remaining on drum.
_____ Winch shall be supplied with 222 ft of EIPS IWRC 5/8-inch wire rope with minimum breaking strength of 40,000 lb.

The winch shall have the following:

_____ Sealed high efficiency planetary reduction gearing
_____ 3-coat paint system for marine equipment

Controls

_____ The specifications below assume hydraulic power is provided to tugger winches. If a pneumatic or electric drive system is provided equivalent alternatives shall be provided.
_____ The winch vendor shall provide a control panel complete with all necessary flow control and pressure regulation required for proper operation of the winch. Hydraulic pressure supply of 145 gpm at 3000 psi will be provided as will return to tank at approximately atmospheric pressure. Any additional hydraulic fluid supply and return functions required for the proper function of the winch shall be made at the control panel. All control valves to operate the winches shall be mounted at the panel. Pressure gauges showing supply and return pressure (at a minimum) shall also be installed on the panel.
_____ The control panel shall place the control valve levers at a comfortable operating height (approximately 30 inches, or as agreed with owner).
_____ In addition to being manually controlled, the control valve shall be remotely controlled as well by a wireless controller allowing the operator to be positioned in a safe location with good visibility. Details of remote control to be submitted with response.
_____ The control panel shall be connected to the supply and return piping on deck with hoses. The connection to the supply piping shall be by Code 62 SAE-type flanges with buna-n O-rings. Both the hose flange and the counter flange to be installed on the hydraulic piping shall be provided by the winch and controls vendor. The flanges shall be as specified on the Mechanical Arrangement drawing. Hoses required for connecting the control panel to the winches shall likewise be provided by winch vendor. Hoses included shall be suitable for flammable fluid service as required by ABS Rules MVR 4-6-7/3 Hydraulic Oil Systems.

Required Quotation Documentation

The following items are required to be included with the quotation:

_____ Dimensioned General Arrangement drawing showing:
_____ Plan, profile, and section views
_____ Maintenance clearance envelops
_____ Foundation mounting details
_____ Wet and dry weights
_____ Center of Gravity
_____ Installation, Commissioning, Operating and Maintenance Manual(s). Must include recommended maintenance interval schedule up to and beyond 120,000 hrs.

_____ Complete mechanical, electrical, and electronic technical specifications.
_____ Details for package mounting unit to main deck
_____ Details of Controls including for manual controls and remote controls

Appendix 7 – Not Used

SECTION 3 - Pedestal Crane

NOTE: Pedestal Crane Barge to be supplied shall include all safety systems available from the fabricator.

ALL CAPACITIES, WEIGHTS, MEASUREMENTS, AND RATINGS ARE APPROXIMATES UNLESS OTHERWISE STATED AS A SHALL.

1 Background

_____ The Port of San Francisco intends to build a crane barge to perform maintenance and repair works of marine structures along the City of San Francisco waterfront. Primarily the Port needs the ability to handle and drive piles at existing piers, but this design will have the capability to support some new construction as well.

_____ The crane barge will operate inside San Francisco Bay year-round, primarily during daytime under relatively protected conditions. The crane will be a permanently mounted pedestal type crane, for reasons of reach and capacity, reliability, readily available service and parts, and availability of the crane itself.

_____ The capacity of the crane shall be sufficient to upend and lift steel and concrete piles 135 ft in length and up to 48-inches in diameter, at a reach of 60 ft from the centerline of the pedestal. The crane will be installed on a pedestal, the top of which is 12 ft above the deck of the barge. At operating draft, the barge freeboard is minimum 4 ft. During lifting and upending operations, the tip of the pile shall clear the deck by 2 ft minimum.

_____ The crane shall be hydraulic, powered by a Tier 4 diesel engine.

_____ This specification defines the minimum requirements for the fabrication, testing, and inspection of one crane and associated ancillaries to be installed on the new floating construction barge.

_____ The scope of the package as well as initial estimates of the size of the crane are presented herein. Supplier to include updated sizing based upon their calculations and include with the package submission.

_____ The Contractor constructing the barge will be the initial purchaser of the crane, and shall ensure it is procured, fabricated, tested, delivered to Fabricator, and installed in accordance with these and crane manufacturer's ("Supplier" or "Crane Vendor") specifications. Purchaser shall confer with the ultimate Owner on technical questions, but commercial communications shall be between Supplier and Purchaser (Contractor).

2 BASIS

_____ The basis for this document is construction and offshore industry codes, standards and practices and Customer experience and preferences. The following references shall apply as specified in the body of this document. The latest editions of the references, including addendums, in force at the time of the end of the response validity date shall apply. Conflicts between the requirements of the reference documents shall be brought

to the attention of the Purchaser and Owner for resolution. The most stringent requirement shall apply unless otherwise agreed in writing by Purchaser and Owner.

2.1 DEFINITIONS AND ACRONYMS

Within the body of this specification, the following definitions shall apply:

Term	Definitions
_____ CA	Classification Authority
_____ Purchaser	Contractor building the barge shall be initial purchaser of crane
_____ Owner	Port of San Francisco / or its assigns
_____ Facility	Supplier or subcontractor shop and/or any property owned by SUPPLIER or subcontractor where any portion of the work will be performed.
_____ Services	Any service or work performed by Supplier that must be performed to comply with the requisition requirements, or the contract, to procure, design, manufacture, and delivery of the work.
_____ Standards	Industry Codes, Standards, Guides, and Recommended Practices referenced herein. Meaning the latest issue or edition in force at the end of SUPPLIER response validity date or the contract date.
_____ Supplier	At response stage: any entity invited to provide a quotation for the equipment and/or any sub-contractors thereto.
_____	At Purchase stage: any entity contracted for the supply of the equipment and/or any sub-contractors thereto.
_____	In all cases Supplier is responsible for performance of all Work and will be the single point of contact for all Work-related issues. Neither Purchaser nor Owner will receive information from or respond directly to sub-Suppliers.
_____ Work	Any material or item or service listed in the requisition or contract as being in the Supplier's Scope of Supply
_____ NFPA	National Fire Protection Association
_____ ASME	American Society of Mechanical Engineers
_____ API	American Petroleum Institute
_____ NACE	National Association of Corrosion Engineers
_____ CFR	Code of Federal Regulations
_____ HPU	Hydraulic Power Unit

2.2 INDUSTRY CODES, STANDARDS, RULES, REGULATIONS

This section lists the owner, client, industry, regulatory references USED IN THIS DOCUMENT. If there is a conflict it shall be brought to the attention of Purchaser and Owner. Most stringent requirement applies unless specified otherwise in writing by Purchaser and Owner.

EXHIBIT A0
Specifications

The specifications listed below or latest edition available of the specifications shall govern all work.

Except where required by the CFR, a Letter of Compliance shall be provided by the Supplier indicating that the equipment is built in accordance with the latest publications of the following Standards including all amendments as of the date of this specification. Unless required by the CFR, Classification Certificates are not required.

	Number	Title
_____	ASME B31.1	Power Piping
_____	ASME B31.3	Process Piping
_____	API SPEC 2C	Specification for Offshore Pedestal-mounted Cranes
_____	ANS/AWS D1.1	Structural Welding Code-Steel
_____	ABS	Rules for Building and Classing Steel Barges
_____	ABS	Guide for Certification of Lifting Appliances (INFO ONLY)
_____	Title 29 CFR Part 1919	Labor, Gear Certification
_____	Title 29 CFR Part 1919	Labor, Safety and Health Regulations for Construction
_____	Title 46 CFR Subchapter F	Shipping, Marine Engineering
_____	Title 40 CFR Subchapter U	Protection of Environment, Air Pollution Controls (EPA Tier IV)
_____	California Regulation 1619.3	Floating Cranes /Derricks and Land Cranes/Derricks on Barges

3 LIMIT OF SUPPLY

_____ Services or equipment, additional to those listed in this section, required for Supplier to provide their performance and process guaranty shall be clearly indicated in writing in the Supplier's scope of supply in Supplier's quotation. The Supplier shall include in their quotation for at least the services and scope of work shown below.

3.1 DEFINITION OF SUPPLIER SERVICES

This specification and the documents listed in the requisition shall cover the following services:

_____ Process Guaranty and Mechanical Guaranty

_____ All required engineering and design work to include process, mechanical, structural, materials, corrosion, foundation, installation, lifting, transportation, Health-Safety-Environment-Human Factors, maintainability, operation, instrumentation, control, and electrical, procurement, receiving, storage, securing, and insuring of all material for fabrication of the work, including all expendables, material handling provisions as required by the contract documents.

_____ Any required interface meetings or communication, and documentation, and submission of documents to obtain Statutory / Regulatory Acceptance and CA acceptance as required.

_____ All required services to perform the work in any of Supplier's or subcontractor's facilities including transport within the facility, and loading and securing the work onto Supplier-furnished transport.

_____ Warranty Period

3.2 SCOPE OF SUPPLY

_____ One (1) independent, completed, fully functional, pedestal or kingpost-mounted marine crane shall be supplied consisting of all major equipment, bulks, structural steel, services, and accessories as defined herein and/or on specifications, including, but not limited to the items shown on this requisition Scope of Supply document. Owner has provided scope limitations for the system as edge of pedestal for additional utilities. Crane shall be designed to API Specification 2C latest edition and conform to requirements of this specification. Scope of supply shall consist but not to be limited to items listed below:

ITEM NO.	DESCRIPTION	UNIT	QTY
_____	1 Crane	Each	1
_____	2 Diesel engine / HPU	Each	1
_____	3 Pedestal or Kingpost complete with bevel for welding to barge structure	Each	1
_____	4 Lifting arrangements for crane	Lot	1
_____	5 Inspection and Testing in accordance with Purchaser/Owner approved Inspection and Test Plan	Lot	1
_____	6 Failure mode analysis	Lot	1
_____	7 Calculations as required by API 2C	Lot	1
_____	8 Bearing calculations as required by API 2C	Lot	1
_____	9 Spare Parts – Commissioning and Startup as required	Lot	1
_____	10 Spare Parts – 2 years operation (OPTION)	Lot	1
_____	11 Special Tools	Lot	1
_____	12 Preservation and preparation for shipment	Lot	1
_____	13 Load out and load out appurtenances (shackles, slings, padeyes etc.)	Lot	1
_____	14 Freight (Free Carrier (FCA) or as agreed)	Lot	1
_____	15 Supplier Data	Lot	1
_____	16 Commissioning Services (OPTION)	Lot	1
_____	17 Training Services (OPTION)	Lot	1
_____	18 Warranty	Lot	1
_____	19 Maintenance and Operating Manuals, Data Books	4 Hard, 1 electronic	1

Note:
The following certificates shall be provided with the crane:
_____ EPA Tier 4 certificate of conformity
_____ API Monogram (API 2C)
_____ Test Certificates shall be provided for the following:
_____ Hooks, shackles, rings

_____ Blocks
_____ Ropes
_____ Winches

3.3 SYSTEMS/ ASSEMBLIES CHARACTERISTICS AND SCOPE

Crane shall, as a minimum, meet the following requirements:

_____ Boom length max 150 ft
_____ Dynamic Rating based API values including vessel motions
_____ Dual main hoists each with the following capacities:
_____ Main Hoists – Min 132 kips @ 25 ft deck/barge lift – Structural Design Condition
_____ Main Hoists – Min 46 kips @ 60 ft deck/barge lift – Design Lift
_____ Whip (Aux) Hoist – Min 20 kips @ all radiuses
_____ Aux Hoist shall be suitable for personnel lifts: 150 ft/minute
_____ Pile Hammer Hose handling hoist to lift approximately 4000 lb (single part) from sheave on the boom located approximately 50 ft from heel pin
_____ Hook travel 20 ft below top of pedestal flange/adapter
_____ Anti two-block system for main and aux hoists
_____ Primary Main Hoist - Power lowering with free falling capability and lockout device for free falling.
_____ Secondary Main & Auxiliary Hoists - Power lowering (no free-falling) by automatic fail-safe brake.

Conditions for the above capacity as per below or Regulations (most stringent requirements to apply):

_____ One-Minute Wind speed: 40 knots
_____ Significant wave height: approx. 1.5 ft at 4 sec
_____ Relative velocity of cargo deck at pick point to crane boom point: 1.2 ft/sec
_____ Barge Trim: +/- 3 deg
_____ Barge Heel: +/- 5 deg
_____ Off-lead and side lead: 5-degree off-lead and 3-degree side-lead
_____ Slewing capacity: Crane shall be operable at a maximum trim/heel with light load (Supplier to advise allowable load). At 5 deg heel or trim, crane shall be able to slew with 80-kip load at 60 ft radius.
_____ The individual assemblies, system requirements are as described below:

3.3.1 Hydraulic Diesel-Driven Power Unit

Hydraulic Diesel Driven Power Unit shall meet the following

3.3.1.1 Diesel Engine

_____ Self-Contained diesel driven unit mounted on crane. Engine brand to be presented in response
_____ Engine to be certified to meet current EPA Tier 4 emissions regulations

_____ Engine shall run on Renewable diesel fuel meeting the requirements of ASTM D975 Grade No. 2D S15
_____ Engine to have weather protection enclosure
_____ Engine shall have sufficient power to perform all primary crane motions at the same time (hoist, boom up, and slew), but not necessarily at maximum load simultaneously.
_____ Engine shall be equipped with the following:
_____ Radiator cooling system with antifreeze coolant.
_____ Spark arresting muffler
_____ Local Starter Button and Emergency Stop
_____ Thermal Insulated exhaust system components as necessary
_____ Tachometer and hour-meter.
_____ Outdoor air cleaner.
_____ Cab mounted gauges for water temperature and oil pressure.
_____ Cab mounted controls for engine shutdown.
_____ Electric starter with cab mounted push button and DC Volt gauge.
_____ Batteries with Marine Battery Charger
_____ Automatic engine shutdown on over-speed.
_____ 316L Stainless Steel Fuel Tank with filler cap, clean out hatch, and drain valve.

3.3.1.2 Hydraulic oil system

The system shall have the following specifications and characteristics:

_____ Supplier to select pumps (i.e., variable vs fixed displacement) based on Intermediate Duty and longevity required.
_____ Air to oil hydraulic fluid heat exchanger shall be mounted in front of the diesel engine radiator.
_____ 10 Micron nominal return line filtration to be fitted on the Oil Conditioning circuit.
_____ 10 Micron nominal pressure line filtration to be fitted for the Control circuit
_____ 10 Micron nominal pressure line filtration to be fitted for the Slew circuit
_____ Separate High-Pressure Filters to be fitted downstream of the main/auxiliary and boom pumps with 10-micron elements. In the event of hydraulic pump failure, the filters will collect and remove contaminants before they enter the system.
_____ Individual pressure gauges for load, luff, and slew circuits.
_____ 316 Stainless Steel Hydraulic Reservoir to be located to supply positive suction head pressure to the pumps at all times. The tank is equipped with filler cap, drain valves, 100 mesh suction strainers, return line diffuser, and clean out hatch.
_____ Drip pans or enclosures around hydraulic components to be fitted.

3.3.2 Machinery Enclosure

_____ A machinery enclosure shall be supplied that forms an integral part of the crane on the Revolving Superstructure and encloses the Prime Mover, Heat Exchanger, Hydraulic Pumps, Valves, Filters, and Reservoir. This enclosure shall be constructed from heavy steel plate, 100% seal welded and equipped with solid steel floor. The following shall be fitted in the space as a minimum:

_____ Air Exhaust Louvers provide access to the Heat Exchanger and Engine Radiator.
_____ Oil Pressure Activated Exhaust Louvers normally closed, open by means of positive engine oil pressure
_____ Access to Boom Walkways with handrails.
_____ Drip Pans around/under Prime Mover and Hydraulic Components.
_____ Lockable Swinging Access Doors to access all components easily
_____ Acoustic Insulation provided on the interior walls of the Machinery Enclosure as needed to reduce the Operators Cabin noise level to 80 dBA or less at full speed.
_____ Dry Chemical Extinguishing System for Engine house includes manually operated release, located on the outside of the engine house, tanks and piping for system.

3.3.3 Hoist System

The following equipment shall be provided:

_____ Two Main Hoist winches, each with single drive motor, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied Drum Brake. Hoists shall be "cascaded" i.e., one (primary main) shall have sheaves located at the nominal boom tip, and sheaves for the second hoist shall be located inboard a sufficient distance to avoid clashing of the hoist blocks during lifting operations. The primary main hoist winch shall have free falling capability and be fitted with a lockout device for the free-falling function.
_____ Auxiliary Hoist winch with single drive motor, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied Drum Brake.
_____ Hose Hoist winch with single drive motor, hydraulic dynamic braking and spring applied "Fail Safe" static external contracting spring applied Drum Brake, 4-kip nominal capacity on 1 fall of approximately ½-inch diameter galvanized wire rope.
_____ All wire rope shall be of the same diameter and specification if possible.
_____ Auxiliary Hoist shall be certified for Personnel Handling.

3.3.4 Boom

_____ 136 ft (nominal) Bolt-connected, Tubular Chord, Lattice Boom shall be provided with bolt on Fast Line Extension, Spring Loaded Boom Stops and mechanical pendulum type Radius Indicator.
_____ High and low angle, non-overridable, boom hoist kick-out device shall be fitted to permit reduction of the minimum operating radius.
_____ Boom tip access to be installed, consisting of a walkway either along the side of the boom or along the top of the boom, accessible from the side of the crane. Access shall be provided to the boom tip from which servicing of all the boom tip machinery such as Sheaves, Main Block, Auxiliary Hook, Boom Lights, and SLI sensors can take place. The walkway and platforms shall include fiberglass grating. Grating to have non-skid walking surface and of UV resistant composition.
_____ Walkways, Ladders, Access Platforms, Railings and Toe Boards to be fitted in accordance with API Spec 2C, latest edition requirements.

3.3.5 Slew Drive System

_____ Spur Gear Slewing drive, consisting of multiple pinions driving against a stationary external gear fixed to the Pedestal or Kingpost. Fixed displacement hydraulic motors driving the pinions through planetary speed reducers shall be provided.

_____ Each speed reducer shall be equipped with Manually Operated spring-applied pressure-released Parking Brake.

_____ Each pinion drive shall be equipped with a slew guard.

3.3.6 Slew Bearing/Pedestal (option)

_____ If crane has slew bearing on a fixed pedestal, a steel tubular pedestal with pre-machined and drilled flange for the slew bearing ring shall be provided and shipped separately. The Pedestal shall include the following;

_____ Lower edge of pedestal pipe to be prepared for welding to the barge structure that will be provided by barge fabricator. The lower edge of the pedestal pipe shall be beveled 45 degrees with a 1/8” nose.

_____ Pedestal height to be 7’-10” to top of flange, putting heel pin of boom at approximately 12’-6” above the deck. Pedestal tubular at bottom to be 94-inch OD with 1.5-inch wall. Note: top of barge pedestal stub is 4’-2” above the deck.

_____ Weathertight Man Way for internal access and maintenance

3.3.7 King Post (option)

_____ If crane has fixed kingpost, complete kingpost shall be provided and shipped separately with nonmetallic upper and lower bearing assemblies. King post shall include the following;

_____ Lower edge of pedestal pipe to be prepared for welding to the barge structure that will be provided by barge fabricator. The lower edge of the pedestal pipe shall be beveled 45 degrees with a 1/8” nose.

_____ Pedestal length to be 7’-10”, putting heel pin of boom at approximately 12’-6” above the deck. Pedestal tubular to be 94-inch OD with 1.5-inch wall. Note: top of barge pedestal stub is 4’-2” above the deck.

_____ Weathertight Manway for internal access and maintenance

3.3.8 Operator’s Cab

The operator’s cab shall be mounted on vibration isolators, and equipped as follows:

_____ Fully sound insulated on walls and roof with sound and vibration absorbent floor mats. Operators Cabin noise level to be reduced to 80 dBA or less with crane machinery at full speed.

_____ Tempered Safety Glass Windows as required to provide high visibility ahead and to the sides:

_____ opening side windows

_____ High Visibility, Fixed front window

_____ Fixed floor window, protected by removable floor grating.

_____ Fixed forward sloping roof window.

_____ Two fixed front quarter panel windows.
_____ Door with fixed window. Door shall be lockable.
_____ Stainless steel, wall mounted console with:
_____ Engine start control
_____ Engine electric start control
_____ Engine stop control
_____ Engine emergency stop control
_____ Hydraulic pressure gages
_____ Hydraulic oil level gage with alarm
_____ Engine tachometer
_____ Engine oil pressure gage
_____ Engine coolant temperature
_____ Windshield wipers operator
_____ Slew Parking Brake operator
_____ Emergency control disengage
_____ Air pressure gage
_____ Air horn operator
_____ Wind Speed and direction readout
_____ Load Rating Load Chart
_____ Fully adjustable low back operators chair with integral armrest mounted “joystick” controls for primary crane motions conforming to API 2C, Paragraph 10.1.4.2. Joystick function and arrangement to be provided with response. Controls include:
_____ Crane slewing (left joystick)
_____ Aux Hoist (left joystick)
_____ Boom raise/Lower (right joystick)
_____ Main Hoist No. 1 (right joystick)
_____ Main Hoist No. 2 (separate lever)
_____ Hose Hoist (separate lever)
_____ Foot pedal for Engine Speed Control.
_____ Foot operated emergency shut down for the hydraulic system

3.3.9 Communications

The following shall be procured and installed in the operator’s cab:
_____ Warning horn with control in the operator’s console
_____ VHF marine transceiver inside the cabin.
_____ Loud hailer microphone and speaker.

3.3.10 Safety Devices

The following shall be provided on the crane:
_____ Hoist Safety Device shall be supplied with Recording Safe Load Indicator for both Main and the Auxiliary lines. The display shall be backlit, for night operation and shall show on digital displays the following as a minimum:
_____ safe working load (SWL)

_____ actual load
_____ hook radius
_____ rope falls
_____ hook load as a percentage of SWL
_____ Visual and audible alarms shall provide a clear and continuous warning indicating that the preset limits, typically 95% (yellow light) & 110% (red light) of permitted load, have been exceeded, are incorporated into the display. Push buttons shall be provided to change number of falls, and to activate test functions and optional features
_____ A manual emergency load lowering system shall be provided on the main, auxiliary and boom hoists, which when activated will allow the load to be lowered to a safe area without the use of the crane's power unit or the assist of an external power supply.
_____ Positive mechanical anti-two block system shall be fitted on both main and auxiliary hoists.
_____ High and low angle, non-overridable, boom hoist kick-out device shall be fitted.
_____ Emergency Master control disengage operator shall be fitted.
_____ One Fire Extinguishers to be provided in or near the cab.
_____ An anemometer and wind direction indicator system shall be installed with the sensing units located on the top of the gantry where it can be reached for maintenance. Readout shall be located in the operator's cab where easily visible to the operator. The unit shall be powered by the crane power system (i.e. at battery voltage).

3.3.11 Electrical System

Lighting Package shall be provided, consisting of:

_____ Crane electrical & lighting system, with boom mounted equipment consisting of:

1. Two-high lumen LED floodlights swivel mounted along the boom to illuminate the load.
2. Two LED light fixture in engine house and one LED external to engine house light fixture.
3. One LED cab light fixture
4. One cab control panel with branch circuit breakers and control circuits as needed.

The following equipment shall also be provided and wired:

_____ Fan plus self-contained Air Conditioner unit, mounted at the rear of the cab. Unit has coil coatings for marine salt water, with 23,000 BTU cooling with separate defroster. Vents can be positioned to defrost upper and front windows.
_____ Heater/Defroster for defogging windows/heating of cabin.

3.4 OTHER TECHNICAL CRITERIA

3.4.1 Performance Criteria

_____ Crane dynamic and static ratings shall be in accordance with API 2C. Latest edition at order shall apply unless otherwise noted.
_____ The crane and its power pack equipment shall be suitable for 2000 hours per year (intermediate duty).
_____ The auxiliary hoist shall be capable of providing a minimum hook speed of 120 ft/min with a single part line with one full layer on the drum with a maximum significant wave height = 1.5 ft.
_____ The Crane shall meet the Performance Criteria detailed in this specification.
Supplier shall provide a process guaranty for the following:
_____ Main Hoist (Static Load),
_____ Aux Hoist (Static Load),
_____ Main Hook speed
_____ Aux Hook speed
_____ Boom Luffing
_____ Swing 360 degrees unlimited

3.4.2 Structural Design Verification Conditions

_____ Structural design of the crane shall be checked against following requirement:
_____ The crane calculations shall be made for all load operations in the most adverse positions, and for wind velocity of at least 40 knots, for Crane in operation, and at least 70 knots, for Crane out of operation in stowed position.

3.4.3 Power and Drive Systems

_____ The crane prime mover shall drive, via independent hydraulic circuits, all the crane motions and auxiliary functions as necessary.
_____ In an emergency loss of prime mover power, the crane shall fail safe. It shall be possible to manually lower the load as required by API Spec 2C. The emergency power system shall allow the crane to be slewed to a safe position and set down the boom in the boom rest.
_____ The load hoist hydraulic system shall be designed to prevent the load lowering before rising when the joystick is moved to the raise position. The winch drums ensure correct spooling during all operating conditions including no load and high winds.

3.4.4 Brakes

_____ The load hoists shall have static brake systems on the winch input drive shaft.
_____ All brakes shall be arranged to automatically apply their full braking force progressively and without shock in case of power failure or a failure in the control system. This braking force shall be sufficient to stop and hold a load of 1.33 times the rated load of the crane hook under all design conditions, including wind, horizontal slide and forward loads, absolute vertical velocity of the cargo deck etc.
_____ The brakes shall be applied directly to the drum.
_____ The hoist drums shall be provided with a non-spark rope guard or spooling arrangement to prevent rope from sliding off.

3.4.5 Boom

_____ A detailed procedure for change out of boom sections, considering the layout of the barge, shall be included in the Operations and Maintenance manual.

_____ The complete boom shall be painted.

4 TECHNICAL REQUIREMENTS

_____ The following sections are a summary of major requirements of this requisition. Supplier is required to review, become familiar with, and incorporate all requirements of requisition documents. All requirements shall apply unless an exception is granted in writing to Supplier by the Purchaser.

4.1 GENERAL

_____ Equipment supplied under this requisition shall be designed for a life in excess of thirty (30) years' service life. Additionally, the equipment and components shall be subjected to "Intermediate Duty" as defined in API Spec 2C. Hydraulic pumps for crane lifting and slewing functions shall be variable displacement type.

_____ The equipment shall be designed for installation on a 150-ft by 55 ft construction barge.

_____ Supplier provided equipment shall be selected such as to reduce the amount of spares inventory the Owner must purchase.

_____ The supplier shall confirm any and all design information provided by Purchaser and Owner and, during detailed engineering, shall provide sizing calculations or selection criteria for all equipment, instruments, structures, and center of gravity for review, approval, and use by the Purchaser and Owner.

4.1.1 Failure Mode Analysis

_____ The designer shall complete a detailed structural analysis and identify the critical members/ components. The analysis shall also include a failure mode analysis, analyzing the structure in the failure mode (i.e., after failure of the critical members such as structures, winches, ropes, and hooks).

_____ Catastrophic overload caused by the hook being pulled away from the crane either in vertical or in horizontal direction, shall be evaluated.

_____ The failure strength of the principal load carrying components shall be such that the consequences of a catastrophic overcapacity situation is minimized, with priority on safety of humans, equipment, and the environment. The failure strength of the principal load carrying components shall be such that the components supporting the operator's cabin are not the first to fail in any condition.

_____ The analysis shall be submitted to the Purchaser and the Owner for review and approval prior to commencement of the crane fabrication and will be used to understand reliability and consequence of failure of all crane components.

4.1.2 Performance Criteria

_____ The design of the crane, structures and bearings shall be suitable for all cases and continuous operation at all load ranges.

_____ Crane operation shall be conducted primarily in calm water conditions with waves primarily from passing ships. Wake is predominantly in the 0.5 to 1.2 ft range at between 2.5 to 5 second periods. Wind waves during operations may reach 1.5 ft significant height with peak spectral period of 4 seconds. Note that a vessel motions analysis is not available.

_____ Design wind speed for the crane shall be 40 knots for any operating condition.

4.1.3 Measurement Unit and Language

_____ The measuring unit and language shall be used for nameplates, caution plates, instruments and drawing shall be as follows:

Item	Standard
Units:	U.S. Customary Units (ft, lbs, kips, etc)
Language:	English
Caution Plate (safety signs):	English

OHSA recognized visual signs shall be utilized

4.1.4 Site Conditions Data

_____ The equipment shall be suitable for outdoor installation and subjected to the ambient site conditions and vessel operating and transportation loads as described in the project specifications, unless otherwise specified. This shall include all forces imposed upon the equipment by transportation to Fabricator, vessel motion during transportation to site and while installed on barge for its operating life.

Item	Data
Ambient Air Temperatures:	32 °F to 104°F in open areas
Humidity:	Up to 100% Relative Humidity
Atmosphere:	Salt laden, marine

4.1.5 Noise and Vibration

_____ Noise levels shall not exceed 80 dBA inside the cab when crane operating at full speed.

_____ Vibration shall be minimized as far as practicable by design.

4.1.6 Materials

_____ Supplier is responsible for recommending correct materials specifications and grades and pre and post fabrication treatments for the equipment suitable for its environment, and design conditions, including fluids handled in the equipment.

_____ Supplier shall be responsible for providing documentation suitable and approved by regulatory authorities for all equipment required by them.

_____ Supplier is responsible for material handling access / egress.

_____ Supplier shall provide listing of all Suppliers' Sub-suppliers for all items provided.

Alternative materials suitable for the service shall be submitted to Purchaser and Owner for review and approval.

_____ Any stainless-steel tubing used in the hydraulic systems shall be type 316 with Molybdenum (Mo) content greater than 2.5%.

4.1.7 Structural

_____ All structural design shall be in accordance with the Supplier project specifications. Ultimately, the completed crane will be delivered directly to the barge fabrication yard, lifted onto the hull, and placed onto the barge-provided foundation extending from the deck of the hull.

4.1.8 Electrical

_____ Supplier shall sub-distribute and provide distribution circuit breakers within crane cabin. Necessary disconnect switch and overload and short circuit protection shall be provided (MCCB/ MCB – Molded Cast Circuit Breaker/Miniature Circuit Breaker) for each individual consumer.

4.1.9 Tagging

_____ Tag numbers shall be assigned by Supplier and shall then be followed through consistently on all Supplier drawings, documentation, and nameplates.

_____ This tagging system typically will not be applied to piping, internal electrical cabling, or equipment-specific components.

4.1.10 Regulatory Compliance

_____ The vessel upon which this equipment will be installed will not be classed. However, the subject equipment shall comply with all OSHA requirements regarding equipment and personnel safety. The State of California has requirements concerning crane design, testing, certification, and operation as outlined in State of California Regulations 1619 and referenced regulations. All certifications required for a new crane shall be obtained by supplier and submitted to Purchaser and Owner prior to final delivery of crane and barge.

4.2 MAINTENANCE REQUIREMENTS

_____ The layout of equipment, and space, on the crane shall ensure that the maintenance activities, including the removal of all major pieces of equipment, can be carried out efficiently in the minimum of time.

_____ The layout of equipment shall permit ease of maintenance with adequate withdrawal space for components which can reasonably be expected to require removal in the lifetime of the equipment.

_____ The crane shall be fitted with all maintenance appurtenances required to allow this to be carried out.

4.2.1 Access

_____ The crane shall be provided with access ladders, walkways, and all necessary handrails, to allow safe access to all parts of the crane for inspection and maintenance.

Safe access shall be provided to the gantry or king post frame (depending on crane type), boom (with handrail) including the boom head, and including access to all equipment including light fixtures. The Supplier shall provide all necessary access platforms and an access ladder, with safety hoops. There shall be a safe means of access to the boom.

_____ Each item of mechanical handling equipment shall allow safe access to all parts for inspection and maintenance purposes.

4.2.2 Safety Devices

_____ Safety devices shall not be dependent on air or electrical power except the crane monitor system.

_____ The crane shall also be fitted with a Safe Load Indicator with a recording facility to provide the lifting history of the crane (programmed PLC (programable logic controller) function, retrievable).

_____ The systems shall be simple, easy to maintain, and provide the crane operator with a status indication in the cab that they are fully operational.

_____ Floodlighting is required to illuminate the load throughout the entire operating envelope of the crane. Lighting is required for all access ways, ladders and working maintenance areas, this shall be combined with emergency lighting to ensure that personnel have sufficient light to exit from any area of the crane onto the main barge deck.

_____ An anemometer and wind direction indicator system shall be installed with the sensing units located on the top of the gantry where it can be reached for maintenance. Readout shall be located in the operator's cab where easily visible to the operator. The unit shall be powered by the crane power system (i.e. at battery voltage).

_____ Electrical isolators for Electrical cabinets shall be provided, if applicable.

4.2.3 Ring or Kingpost Bearing

_____ Depending on the kind of crane, i.e. pedestal with ring bearing, or kingpost with upper and lower bearings, procedures and necessary equipment regarding following items 1-4 shall be provided:

1 Replacement of bearing (ref para 3.3.6 or 3.3.7 as appropriate)
2 Bearing wear test.
3 Taking of grease samples.
4 Alignment check and adjustment of slew pinion and gear.

4.3 FABRICATION AND ASSEMBLY

_____ Equipment shall be completely fabricated, painted, assembled, inspected, and function tested in Supplier facility.

4.3.1 Quality Assurance / Quality Control

_____ The Purchaser and the Owner will ensure all purchased products conform to specified purchase order requirements by establishing and implementing any necessary source inspections or other activities. When source inspections are required, Purchaser's (and

possibly Owner's) inspector(s) will conduct activities based on the Purchaser/Owner-approved Supplier Inspection and Test Plan (ITP). The Supplier must identify the critical inspection activities and present these in their Supplier Inspection and Test Plan. The product will not be allowed to ship until the inspector(s) issues an Inspection Release Certificate.

_____ Purchaser's and Owner's QA/QC contact information will be provided at the Supplier kick-off meeting.

_____ The SUPPLIER shall perform work in compliance with ISO 9001 Guidelines.

4.3.2 Materials

_____ Supplier shall furnish new and unused materials, including CA required documentation, as required. Materials shall be free from manufacturing defects.

4.3.3 Electrical

_____ The Supplier shall pre-wire all instruments and utility supplies to junction boxes mounted on the crane. The Supplier shall include cabling, cable trays of SS 316L, glanding, labeling, terminating, and testing all terminations.

4.3.3.1 General

_____ All recommended practices of ABS, USCG, and IEEE-45-2002 Recommended Practice for Electric Installations on Shipboard are deemed requirements of this Specification. All work shall conform to the latest U.S. Coast Guard and ABS Rules.

_____ All required equipment shall be Contractor furnished and installed.

_____ The Contractor shall provide vendor data of all Contractor-furnished equipment in the Data Book described in Section 4.4, Crane Documentation.

4.3.3.2 Cable & Cable Installation

_____ Cables shall be installed in Cableways in compliance with ABS, USCG, and other applicable Regulatory Body Requirements.

_____ Electrical cables shall meet ABS requirements, including flammability and bunched flammability criteria. Power cables shall have a 90°C operating temperature. All cables shall be properly selected for their intended purpose. Cables shall be run as directly as practicable, consistent with adequate ventilation of the cable wire ways, and with due care in the avoidance of hazardous or otherwise undesirable locations.

_____ Cables, insofar as practicable, shall not be installed in locations exposed to weather. Cables for weather deck mounted fixtures and equipment shall be installed on the inside surface of house structures supporting such fixtures and equipment.

_____ Cabling shall be neatly formed and installed in a workmanlike manner, giving particular attention to appearance.

_____ All cables shall be continuous between outlet boxes, connection boxes, switchboards, panel boards, etc. They shall enter the box and shall be secured by a clamp or connector to assure a good electrical connection between the cable armor, where fitted,

and the box and wiring device, or the cable armor may be electrically connected to the enclosure by means of a suitable clamp or strap.

_____ Cable entry into electrical equipment in exposed areas shall generally be from below unless otherwise noted. At specific locations, where cable entry from below is impractical, cable entry from another direction shall be the subject of approval by the Purchaser and Owner.

_____ Control and monitoring cables to sensors, remote distribution panels, or to main processors, shall be segregated from power and lighting cables by at least 50 mm, or as otherwise approved by the Purchaser and Owner.

_____ Cable splicing shall not be allowed unless specified for a particular piece of equipment. Where required, the splice shall meet the ABS requirements in 4-8-3/9.19 and 4-8-4/21.23. The splice shall stagger the connections of each conductor. The splice kit shall provide for a watertight connection that incorporates crimped conductor connections, epoxy resin, and heat shrink jackets. Taping is not an acceptable alternative.

_____ Where cables pass through areas where they may be damaged, they shall be protected by stainless steel pipe or other Owner-approved conduit.

_____ Any damage to the cable outer jacket that occurs during cable installation shall be repaired by using a repair kit specifically designed for such purpose. Taping the cable jacket will not be acceptable. Where installation damage affects the conductor or conductor insulation, the entire cable shall be replaced.

_____ Connection of ship's cables by twisting together and taping is strictly prohibited. Removing strands from wire to fit a smaller lug is also prohibited.

_____ Where cables are oversized to suit voltage drop conditions and cannot easily be connected to light fixtures or convenience outlets, a jumper wire of smaller size can be used to connect the fixture or outlet to the larger cables to the fixture. The jumper must be lugged on both ends and made with a bolted splice inside of the fixture or outlet enclosure. The jumper wire must be sized to be adequately protected by the circuit breaker feeding the oversized cable.

_____ A single layer of cables shall rest on one hanger except that a second layer of smaller cables may be installed to fill in between larger cables to facilitate strapping of cables. If an additional layer of cables is required, it shall be supported on a second hanger bracketed a sufficient distance from the first to permit painting and inspection.

4.3.3.3 Cableway & Penetrations

_____ Where cables pass through non-watertight non-gastight bulkheads, decks, or platforms, the openings shall be fitted with collars which extend at least 100 mm (6") above/below platforms and decks, and at least 50 mm from the surface of each side of bulkheads. If cables are to lay against the collar, a rubber or other softener shall be placed between the cables and the collar to prevent chafing.

_____ Cable supports shall be spaced not more than 300 mm (12") on horizontal and 500 mm (20") on vertical runs

_____ Steel hanger or flat bar not less than 5 mm (1/4”) thick with corrosion resistant finish shall be used for all cable hanger material. Painting shall be acceptable as a corrosion resistant material for interior locations. Stainless steel shall be used for weather deck and other wet locations. Bolts, nuts, and washers are to be cadmium plated for interior use and are to be stainless steel or bronze for exterior use.

_____ Attachments to watertight bulkheads or decks by means of rivets or bolts penetrating the bulkhead or deck is not permitted. Studs or steel framing welded to the bulkhead or deck shall be used for mounting supports.

_____ Horizontal cableways on deck shall be protected over their entire length by a removable steel cover at least 5mm thick to protect against damage.

_____ Local runs of cable between cableways and devices may be supported by weld stud hangers or minimum 1” wide flat bar, with maximum spacing of 500 mm (20”) between supports.

_____ Cables shall be strapped with stainless steel band straps at least 12 mm (1/2”) wide to every fourth hanger on horizontal runs and every hanger on vertical or bulkhead runs. Where cables are supported by the strapping, they shall be strapped on every hanger.

4.3.4 Nameplates and Labels

_____ Nameplates shall be of 316 stainless steel, plastic (flame-retardant material) or bronze, and information shall be etched or embossed.

_____ Nameplate shall be mounted on equipment in a visible location.

_____ All equipment, instruments, and controls shall be provided with a label plate identifying the system to which the item belongs, its tag number and any other pertinent operational data.

_____ Label plates shall be engraved, 3-laminate, colored plastic.

_____ Non-corrosive methods shall be used to identify all components permanently and clearly.

_____ Nameplates shall be permanently mounted on the unit in an accessible location using stainless steel pins.

_____ All nameplate details shall be shown on drawings and submitted for Purchaser and Owner review and comment.

_____ Major equipment components – including any and all electric motors, pumps, and engines - shall have a permanently attached, engraved, or stamped nameplate with the following information:

_____ Name of fabricator
_____ Date of manufacture
_____ Fabricator’s serial number
_____ Item tag number
_____ Unit capacity

4.3.5 Assembly

_____ Unit shall be, as far as practicable provided fully assembled. Any disassembly required for shipping shall be performed in Supplier’s shop. Supplier shall include an option to

provide field labor and materials for re-assembly at Purchaser's facility in Supplier Scope of Supply as a line-item option.

_____ No threaded connections shall be allowed in fuel service.

4.3.6 Coatings and Corrosion Protection

_____ Supplier shall propose and submit an offshore coating system suitable for a marine, salt-laden environment. Purchaser and Owner shall either agree to Supplier's proposal or provide a counter proposal of a system.

_____ All Major buyout items, such as the prime mover, pumps, valves, etc. contained within the machinery enclosure shall retain their factory OEM coatings.

_____ The final paint color for the external parts of the crane including the cab, frame, gantry, boom, machinery enclosure, handrails, and other parts visible from the side and below shall be "Port Blue" per the following description:

_____ Port Blue: per PPG 1/48 point scale 96 line colorant:

1. Thalo Green 8 -1/2 ounces per 5 gallons (D)
2. Thalo Blue 16 -3/4 ounces per 5 gallons (E)
3. Raw Umber ¼ ounce per 5 gallons (L)
4. Titanium White 9 ounces per 5 gallons (W)

_____ The pedestal shall be gray (Purchaser to provide RAL No.) to match the barge stub.

4.3.7 Inspection and Testing

_____ Supplier shall present their standard inspection / testing plan (ITP) with the quotation.

_____ The equipment shall be fully assembled and tested by Supplier prior to shipment. Dry Instrument Air (Free of oil and moisture) shall be used for testing of instrumentation requiring gas or air.

_____ This equipment shall be supplied with manufacturing and testing survey reports signed by Purchaser (and Owner if present).

_____ The crane test procedure shall be submitted to Purchaser and Owner for approval.

_____ The test schedule shall be notified to Purchaser and Owner at least one month in advance.

_____ Inspection and test record shall be submitted at equipment delivery. The record will cover all inspection and testing performed including

_____ Structure material and welding

_____ Piping material and valve & fitting

_____ Electrical and Instrumentation

_____ Function test of fully assembled crane

_____ Load test.

_____ Each item of the mechanical handling equipment shall be fully tested at the Supplier's works.

_____ THE FOLLOWING ADDITIONAL NDE (Non Destructive Examination) REQUIREMENTS SHALL APPLY:

_____ i) All welds in pressure parts constructed from stainless steel materials shall be subject to 100% dye penetrate inspection.

_____ ii) All welds to be 100% visually inspected and 100% Magnetic Particle inspected. Full penetration and Butt welds will also be subjected to 100% volumetric NDE by either ultrasonic or radiography. All areas under lifting points shall be subject to 100% ultrasonic inspection before welding on the attachment to ensure area is free from subsurface laminations, followed by Ultrasonic Testing (UT) inspection to verify weld quality.

_____ iii) The acceptance criteria for NDE shall be in accordance with American Welding Society (AWS) D1.1 Table 6.1 for Visual and Magnetic Particle Inspection. For Volumetric examination by either Ultrasonic or Radiography the acceptance criteria shall be AWS D1.1 Sections 6.13.2 and 6.12.1 respectively.

_____ Crane, hoists, wire ropes, hooks, shall be proof load tested and certified.

4.3.8 Preparation for shipment

_____ Unless otherwise approved in writing by Purchaser and Owner, no work which requires inspection and testing may be shipped until the work has been inspected, tested and Purchaser and Owner have issued a signed Inspection Release Certificate (IRC) to Supplier. If CA survey is required, this equipment may not be shipped until CA has issued a survey report or has signed a letter stating that: they intend to issue a survey report and shipping may be allowed.

_____ Supplier shall provide the work FOB or other mutually agreed shipping terms from Supplier's facility to Fabricator's facility, domestic packed, loaded and secured onto Supplier's supplied transport in accordance with contract procedures and specifications.

_____ The Supplier shall be responsible for the loading and securing and transport of the equipment to Purchaser's facility.

_____ Screwed connections shall be protected with threaded steel plugs or caps.

_____ All machined surfaces and threaded connections subject to corrosion from atmospheric conditions shall be protected by coating with a rust prevention product.

_____ Coupling spacers shall be removed, boxed (complete with bolts), and shipped inside the skid package.

_____ Any openings in piping, flanges, and fittings, junction boxes, panels, and conduit shall be blanked off (airtight) and protected with wood or steel covers. Covers shall be attached by bolting or threading.

_____ All instruments, controls, and other items that are susceptible to damage during shipment shall be removed, crated in waterproof boxes, and securely strapped to the skid.

_____ One set of installation, operating and maintenance instructions and preservation procedures shall be included with the equipment at the time of shipment.

_____ Supplier shall submit equipment preservation procedures to Purchaser and Owner, for review and approval, at least two (2) months prior to shipment.

_____ Equipment shall be prepared for outdoor storage per Purchaser and Owner approved procedures. The duration of storage shall be as per contract, default minimum shall be 12 months.

4.3.9 Heavy Lift

_____ If the equipment is designated as “Heavy Lift” or if this requisition is for heavy lift services, supplier shall include in supplier pricing to provide the Load out Option 2: using crawler crane

_____ Supplier shall provide all calculations required for lift, load out, sea fastening, and transportation.

_____ If supplier is awarded an order, Supplier will provide the following information prior to shipment:

_____ Correct crane specs and certificates

_____ Padeye material / mill certificates, and padeye calculations

_____ Padeye Non Destructive Test reports

_____ Sling and shackle certificates, and calculations

4.4 DOCUMENTATION

_____ A full set of documentation for the crane shall be assembled and submitted to the Purchaser/Owner upon delivery of the crane. This documentation shall include the full set of records for the crane fabrication and assembly and documentation covering all of the purchased fittings and equipment installed. Operating and maintenance manuals shall also be prepared and submitted as part of the documentation set. Three volumes are envisioned, 1) a data book, 2) an assembly and maintenance manual, and 3) an operating manual.

4.4.1 Crane Fabrication and Data Documentation

_____ Crane documentation shall include as-built drawings with final member sizes and arrangements, final inspection reports, material certificates, weld inspection records, coating inspection records, final test reports, final weight reports, and any other relevant documentation. The Data Book shall include equipment cut sheets, dimensioned arrangement drawings, parts lists, assembly drawings, component material descriptions, securing details, and details of interfaces with the barge piping, electrical power, and structural systems for all purchased equipment and fittings. All certifications and approval documents required for individual components and for the fully assembled crane shall be included in the data books.

4.4.2 Assembly and Maintenance Manual

_____ The assembly and maintenance manual to be prepared by the Supplier describing original crane assembly procedures required to assemble the crane on the barge initially, any commissioning procedures, and initial startup procedures. Maintenance procedures and intervals shall be described for each component of the crane requiring regular service. The documentation shall include original fabricators maintenance recommendations and procedures.

4.4.3 Operating Manual

_____ The operating manual shall include detailed instructions, procedures, and warnings for the safe operation of the crane and for each component installed on the crane. Each function shall be described and its operating procedures detailed.

4.4.4 Submittals

_____ Draft versions of each manual shall be submitted to the Purchaser and Owner for review and approval one month before delivery of the completed barge. The Purchaser and Owner will provide feedback two weeks prior to final acceptance testing of the crane.

_____ Four hard copies and one electronic copy of each manual shall be furnished to the Owner on final acceptance of the crane.

4.5 POST DELIVERY ITEMS

4.5.1 Training

_____ Supplier shall specify how much training and how long that training should take for operators to become proficient in the operation and maintenance of the equipment. Supplier shall include the cost to provide training for up to five operators to become proficient on operating and maintaining Supplier Work as three line-item options. The first option shall only include for training Owner's operators at Supplier selected site (such as design or fabrication facility). The second option shall include training only in Fabricator's facility during pre-commissioning onboard the barge. The third option shall include training only at Owner's dock after barge delivered to Port of San Francisco.

4.5.2 Pre-Commissioning and Commissioning Assistance

_____ Supplier shall include the cost to provide startup and commissioning assistance at Fabricator for at least one week, as a line-item option.

4.5.3 Spare Parts, Special Tools and Accessories

_____ The Supplier shall submit the recommended spare parts lists (commissioning / start-up and two (2) years spares; Critical Spares shall be highlighted) with their proposal. The list shall be itemized and priced separately.

_____ The list of any special tools and accessories, and required operating chemicals, fluids or lubricants shall be furnished.

_____ Spare parts if furnished shall be provided in two (2) separate boxes and labeled as "Two Year Spares", and "Start Up and Commissioning Spare / Special Tools".

_____ All spare parts and special tools shall be provided in a supplier provided painted (crane part system with name stenciled on the box) job site steel box with a padlock locking mechanism.

_____ Spare parts and special tools if furnished shall be adequately protected from corrosion and mechanical damage. Identification tags or labeling shall be provided on every spare part and tool.

4.5.4 Warranty / Guarantee

_____ Supplier shall guarantee the Pedestal Crane will comply with the requirements of the Contract Documents, as integrated in the City-approved final 100% design. Failure to conform to the Contract Documents, as integrated in the City-approved final 100% design shall obligate Supplier to repair or replace the equipment at their sole cost.

_____ Supplier shall warrant the work for 18 months from shipment or 12 months from commissioning, whichever is earlier. A two year extended warranty from the manufacturer shall be provided to begin at the conclusion of the original warranty period.. The warranty, as a minimum, shall cover all defects in and/or from: engineering, design, manufacturing, materials, corrosion protection application / performance, and preparation for shipment and packing of the Pedestal Crane. Performance requirements for the Pedestal Crane are listed in paragraph 4.3.

_____ Warranty for crane shall transfer to Owner in full on acceptance of crane after installation, commissioning and testing on the barge and final acceptance of barge from Purchaser.

APPENDIX 1 INFORMATION TO BE SUPPLIED WITH RESPONSE

Information to be supplied with response:

_____ General Arrangement of the crane
_____ Plan view of crane
_____ Elevation view of crane
_____ Stack up Arrangements showing crane with hook block lifting 135’ x 48” dia pile on barge with 3 ft draft. Two conditions shall be shown:
_____ Minimum hook radius with this lift – radius shall be clearly denoted
_____ hook radius of 60 ft
_____ Weight and Location of center of gravity of crane without boom
_____ Weight and Location of center of gravity of the boom only
_____ Manufacturer and Weights of Blocks (Main lifts) and Overhaul ball (Aux)
_____ Make and model of diesel engine plus Tier 4 certificate
_____ Make and model of other major components including hydraulic pump(s) and winches
_____ Sizes, lengths, strength, and construction of wire rope for each hoist
_____ Description of hydraulic system including justification for proposed pumps considering the Intermediate Duty service and longevity required.
_____ Joystick controls functions and arrangement
_____ Make and description of the crane load monitoring system
_____ Make and description of anemometer/wind indicator
_____ Proposed Coating System(s) for all parts of the crane
_____ Proposed Inspection and Test Plan with major hold points identified.
_____ Recommended spare parts lists (Critical Spares shall be highlighted):
_____ Commissioning / start-up
_____ Two (2) years spares
_____ Recommended training Options:

_____ At Supplier's facility during testing
_____ At Fabricator during testing and commissioning onboard the barge
_____ At Owner's facility after delivery of the barge
_____ Performance and process guarantees

Appendix 2 - Supplier Data Requirements

Supplier to provide the following information at a minimum with a draft prior to delivery and final version at delivery of the crane.

Item No.	Description	With Response	For Review and approval	Data Book Manual
_____ 1	Arrangement Drawings	X	X	X
_____ 2	Quality Manual		X	
_____ 3	Inspection and Test Plan	X	X	
_____ 4	Engineering/Procurement/ Fabrication Schedule	X		
_____ 5	Supplier Drawing and Document Register		X	
_____ 6	Installation, Operation and Maintenance Manual		X	X
_____ 7	Parts manual		X	X
_____ 8	Commissioning Spare Parts Lists	X	X	X
_____ 9	Recommended Spare Parts Lists	X	X	X
_____ 10	List of Specialized Tools		X	X
_____ 11	Manufacturers Catalogues			X
_____ 12	Piping and Instrument Diagrams		X	X
_____ 13	Electrical Diagrams			
_____ 14	Piping layout		X	X
_____ 15	Detailed Drawings		X	X
_____ 16	Technical Specification	X	X	

EXHIBIT A-1 – General Arrangement

GENERAL NOTES

1. THIS DRAWING PRESENTS THE GENERAL ARRANGEMENT OF A CRANE BARGE FOR PERFORMING ROUTINE REPAIRS AND OTHER LIFTING WORKS ALONG THE SAN FRANCISCO WATERFRONT.
2. THE BARGE IS DESIGNED TO PROVIDE STABILITY AND STRENGTH TO LIFT AND HANDLE PILES UP TO 135 FT IN LENGTH AND TO 76,000 LB AT 60 FT RADIUS FROM CRANE CL. SPUD PILES TO HOLD BARGE IN 35 KNOTS WIND AND 2 KNOTS CURRENT IN 40 FT WATER DEPTH.
3. THE BARGE IS DESIGNED TO MEET THE REQUIREMENTS OF THE ABS RULES FOR BUILDING AND CLASSING STEEL BARGES, 2020, ALTHOUGH THE DESIGN WILL NOT ACTUALLY BE REVIEWED NOR APPROVED BY CLASS.
4. THE BARGE IS FURTHER DESIGNED TO SATISFY THE USCG STABILITY REQUIREMENTS IN 46 CFR SUBCHAPTER S.

ABBREVIATIONS

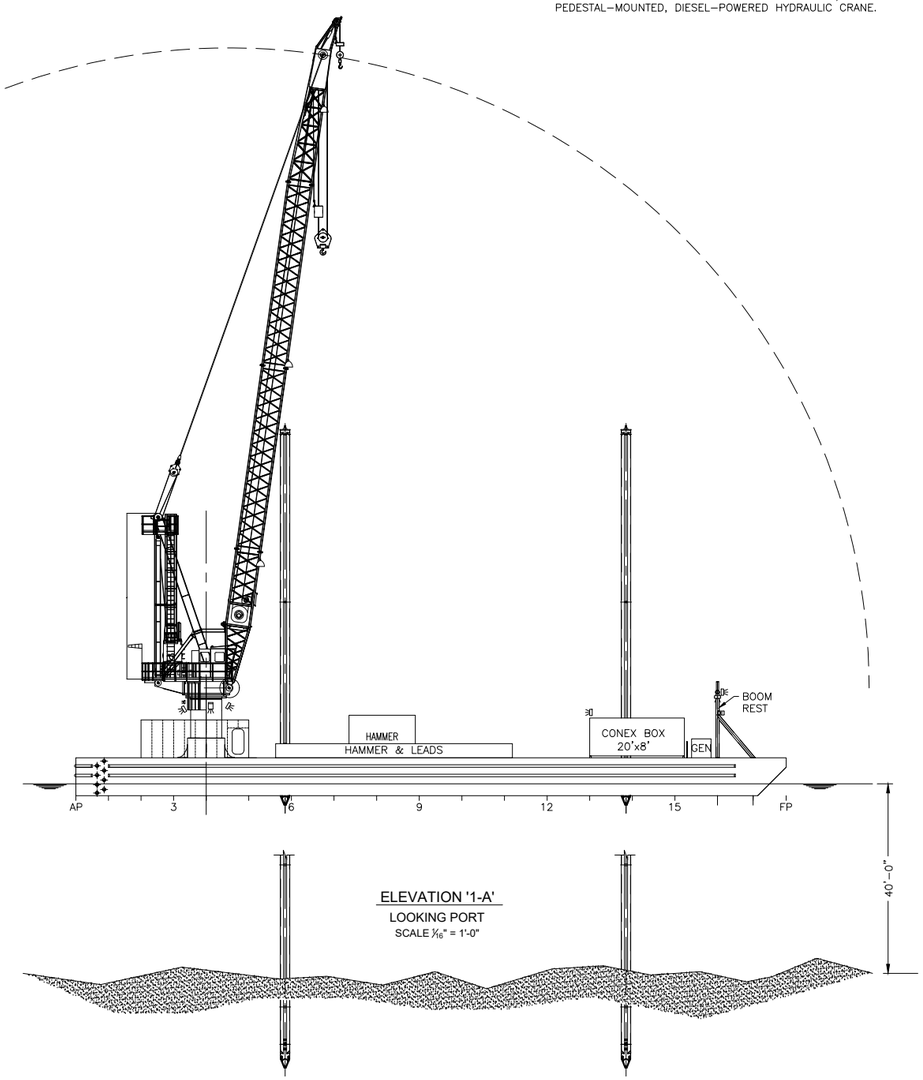
ABL ___ ABOVE BASELINE
ABT ___ ABOUT
BHD ___ BULKHEAD
BKT ___ BRACKET
BTM ___ BOTTOM
CHK ___ CHOCK
CL ___ CENTERLINE
CLR ___ CLEAR
CMG ___ COAMING
CTR ___ CENTER
DBL ___ DOUBLE
DET ___ DETAIL
D.O. ___ DITTO (SAME AS)
EXISTG ___ EXISTING
FR ___ FRAME
FWD ___ FORWARD
GDR ___ GIRDER
LONGL ___ LONGITUDINAL
NS ___ NEAR SIDE
N&F ___ NEAR & FAR
OPNG ___ OPENING
OUTBD ___ OUTBOARD
PLT ___ PLATE
PLTG ___ PLATING
REF ___ REFERENCE
STD ___ STANDARD
T&B ___ TOP & BOTTOM
TYP ___ TYPICAL
WT ___ WATERTIGHT

DRAWING INDEX

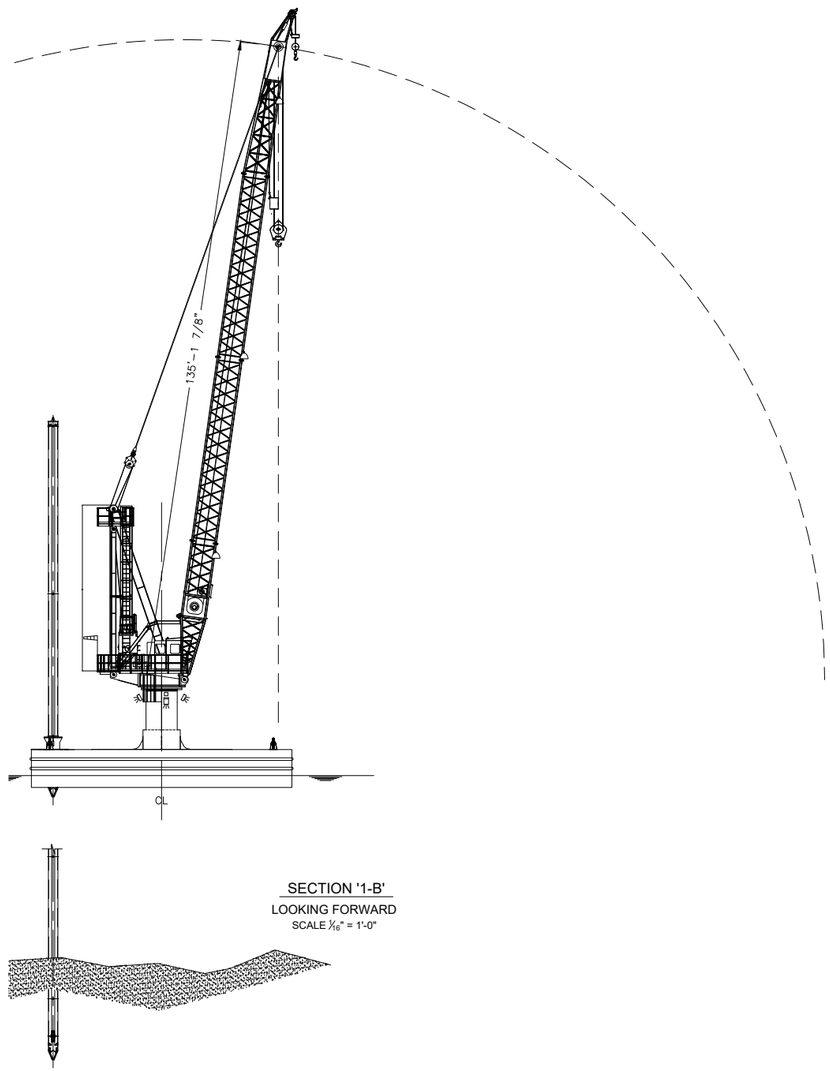
PRINCIPAL PARTICULARS

LENGTH _____ 150'–0"
BEAM _____ 55'–0"
DEPTH _____ 8'–0"
DRAFT _____ 2'–6"
DISPLACEMENT _____ 776 SHORT TONS (1/2)
LIFT CAPACITY _____ 180,000LB @ 25'–0" RADIUS (ANY DIRECTION)
LIFT CAPACITY _____ 112,000LB @ 60'–0" RADIUS (ANY DIRECTION)
LIFT CAPACITY _____ 26,500LB @ 150'–0" RADIUS (ANY DIRECTION)
DESIGN WATER DEPTH __ 60 FT, MOORED: 40FT WITH SPUDS DOWN
AREA LOADING ON DECK = 1200 LB/SQUARE FOOT

CRANE SHOWN IS A TECHCRANE MODEL L120–136,
PEDESTAL–MOUNTED, DIESEL–POWERED HYDRAULIC CRANE.



ELEVATION '1-A'
LOOKING PORT
SCALE 1/16" = 1'-0"



SECTION '1-B'
LOOKING FORWARD
SCALE 1/16" = 1'-0"

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
-	PRELIMINARY ISSUE TO CLIENT FOR REVIEW.	RJP 12/11/20 JRP
0	PRELIMINARY ISSUE TO CLIENT FOR REVIEW. 1. SUBDIVIDED BOW CENTER VOID TO ADD CENTER FRESH WATER BALLAST TANK PLUS TWO VOIDS, ONE EACH P & S. 2. ADDED DECK HYDRAULIC PIPING.	JRP 3/08/21 JRP
1	ISSUE FOR BIDDING 1. ADDED SHELL POCKET LADDERS FORE AND AFT 2. ADDED SECOND DECK HATCH TO MOST COMPARTMENTS	JRP 4/06/21 JRP
2	RE–ISSUE FOR BIDDING 1. CORRECTED DISPLACEMENT	JRP 6/13/22 JRP
3	REVISED PER FINAL SPECIFICATION	AMH 2/6/25 JRP

REFERENCES

No.	TITLE	DWG No.
1	STRUCTURAL SCANTLING PLAN	2018-060-01-02
2	SPUD PILE	2018-060-01-03
3	OUTFITTING	2018-060-01-04
4	MECHANICAL ARRANGEMENT	2018-060-01-05
5		

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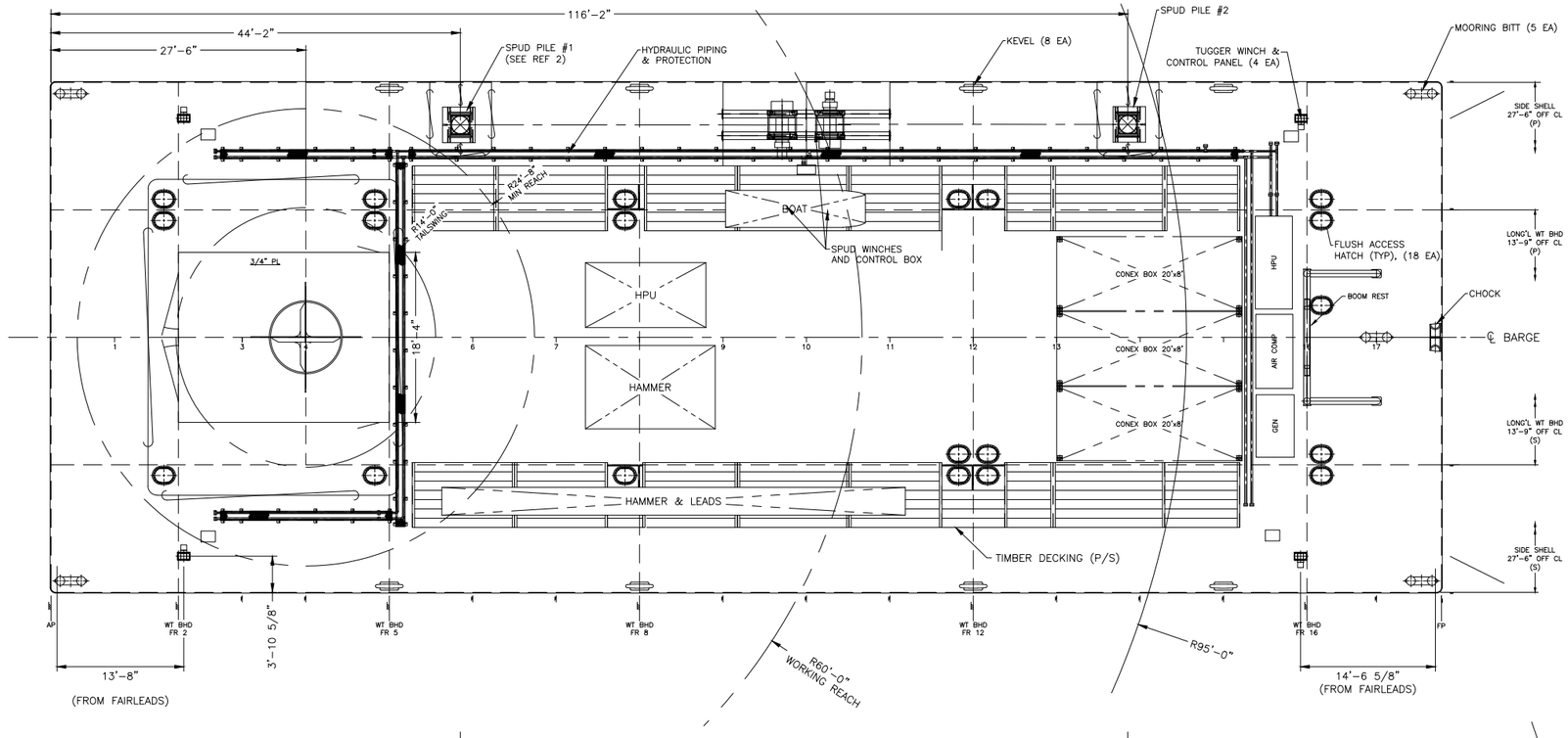
CHKD:	JRP	APPD:	SAS	ACADFILE:	180600101-3
PROJECT FILE:		2018-060-01		PLOTSCALE:	1:2 ON ANSI D
ABS APPROVAL:	-				
-					

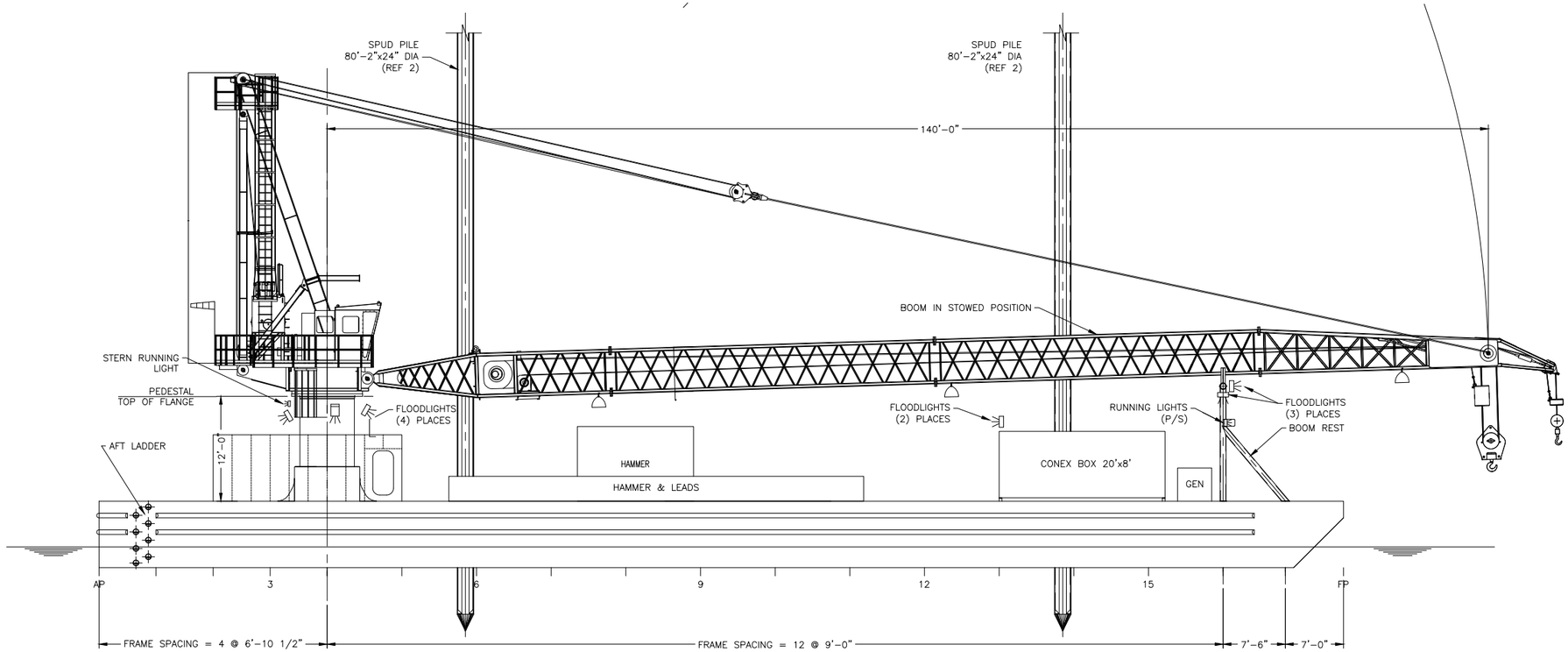
SAN FRANCISCO PORT COMMISSION
PORT OF SAN FRANCISCO
DEPARTMENT OF ENGINEERING

CRANE BARGE

GENERAL ARRANGEMENT

OWNER APPVL:	-	HEC DWG No.:	2018-060-01-01
DATE:	-	SHEET 1 OF 3	REV 3
FILE:	-		





ELEVATION 2-B

MAIN DECK ARRANGEMENT

SCALE: 1/8"=1'-0"

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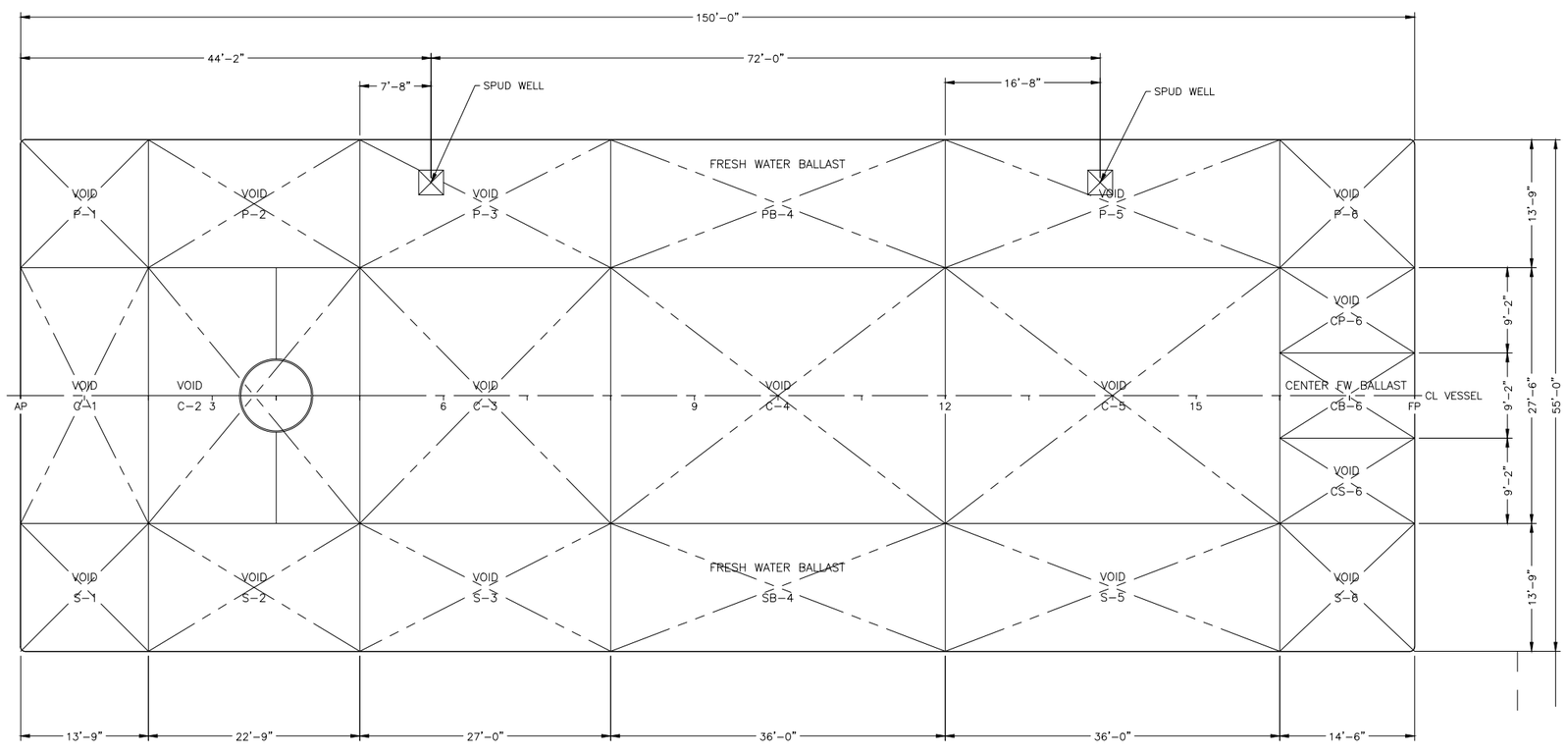
50 TON CRANE BARGE

GENERAL ARRANGEMENT

HEC DWG No.:	SCALE: AS NOTED	REV
2018-060-01-01	SHEET 2 OF 3	3



PLAN 3-A

TANK ARRANGEMENT

SCALE: 1/8"=1'-0"

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50 TON CRANE BARGE

GENERAL ARRANGEMENT

HEC DWG No.:	SCALE: AS NOTED	
2018-060-01-01	SHEET 3 OF 3	REV 3

EXHIBIT A-2 – Structural Scantling Plan

GENERAL NOTES

1. THIS DRAWING PRESENTS THE CONTRACT DESIGN OF A CRANE BARGE FOR PERFORMING ROUTINE REPAIRS AND OTHER LIFTING WORKS ALONG THE SAN FRANCISCO WATERFRONT.

2. ALL PLAN VIEWS ARE TOP LOOKING DOWN. ALL SECTIONS ARE LOOKING AFT. ELEVATIONS VIEWS ARE LOOKING TO PORT, AS FOLLOWS:
   - STARBOARD SIDE: OUTBOARD LOOKING INBOARD
   - PORT SIDE: INBOARD LOOKING OUTBOARD

3. THE BARGE IS DESIGNED TO PROVIDE STABILITY AND STRENGTH TO LIFT AND HANDLE PILES UP TO 135 FT IN LENGTH AND TO 76,000 LB AT A 60 FT RADIUS FROM CRANE CL.

4. THE BARGE IS DESIGNED TO MEET THE REQUIREMENTS OF THE ABS RULES FOR BUILDING AND CLASSING STEEL BARGES, 2020. THE DESIGN WILL NOT BE REVIEWED NOR APPROVED BY CLASS.

5. THE BARGE IS FURTHER DESIGNED TO SATISFY THE USCG STABILITY REQUIREMENTS IN 46 CFR SUBCHAPTER S.

6. ALL MATERIAL, WELDING, FABRICATION AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH APPLICABLE ABS RULES AND TO THE SATISFACTION OF THE ATTENDING SURVEYOR (IF ANY) AND THE OWNER.

7. THERE SHALL BE NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL OF SURVEYOR AND THE OWNER'S REPRESENTATIVE.

8. ALL NEW STEEL IS TO BE ABS GRADE A OR ASTM A-36 UNLESS NOTED OTHERWISE.

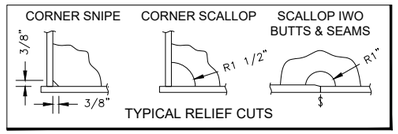
9. ALL FAYING SURFACES TO BE SEAL WELDED.

10. EXCEPT WHERE NOTED, ALL WELDS ARE TO BE DOUBLE CONTINUOUS FILLETS WRAPPED AT THE ENDS. UNLESS OTHERWISE INDICATED, WELDS SHALL BE SIZED PER THE TABLE SHOWN BELOW. SIZES PERTAIN TO THE LEG LENGTH.

11. PROVIDE RELIEF CUTS AS SHOWN IN THE TABLE BELOW. IF NONE IS SHOWN ON THE DETAIL, IT IS ASSUMED TO HAVE THE 3/8"x3/8" CORNER SNIPE FIT OVER EXISTING FILLET WELD AND IS TO BE FILLED WITH WELD. SCALLOPS SHALL HAVE RADII AS SHOWN IN THE TABLE BELOW UNLESS NOTED OTHERWISE.

FILLET WELD SIZING TABLE

THICKNESS OF THINNER PLATE	≤1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	≥3/4"
FILLET WELD LEG SIZE	3/16"	7/32"	7/32"	1/4"	5/16"	5/16"	3/8"



PRINCIPAL PARTICULARS

LENGTH _____ 150'-0"
BEAM _____ 55'-0"
DEPTH _____ 8'-0"
DRAFT _____ 2'-6"
DISPLACEMENT _____ 776 SHORT TONS
LIFT CAPACITY _____ 180,000LB @ 25'-0" RADIUS (ANY DIRECTION)
LIFT CAPACITY _____ 112,000LB @ 60'-0" RADIUS (ANY DIRECTION)
LIFT CAPACITY _____ 26,500LB @ 150'-0" RADIUS (ANY DIRECTION)
DESIGN WATER DEPTH _ 60 FT (MOORED)
DESIGN WATER DEPTH _ 40 FT (POSITIONED WITH SPUD PILES)
AREA LOADING ON DECK = 1200 LB/SQUARE FOOT

DRAWING INDEX

ABBREVIATIONS

ABL ____ ABOVE BASELINE
ABT ____ ABOUT
BHD ____ BULKHEAD
BKT ____ BRACKET
BTM ____ BOTTOM
CHK ____ CHOCK
CL _____ CENTERLINE
CLR ____ CLEAR
CMG ____ COAMING
CTR ____ CENTER
DBL ____ DOUBLE
DET ____ DETAIL
D.O. ____ DITTO (SAME AS)
EXISTG __ EXISTING
FR _____ FRAME
FWD ____ FORWARD
GDR ____ GIRDER
LONGL __ LONGITUDINAL
NS _____ NEAR SIDE
N&F ____ NEAR & FAR
OPNG ___ OPENING
OUTBD __ OUTBOARD
PLT ____ PLATE
PLTG ___ PLATING
REF ____ REFERENCE
STD ____ STANDARD
T&B ____ TOP & BOTTOM
TYP ____ TYPICAL
WT ____ WATERTIGHT

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
-	PRELIMINARY ISSUE TO CLIENT FOR REVIEW.	RJP 12/11/20 JRP
0	ISSUE FOR BIDDING	JRP 3/8/21 JRP
1	ISSUE FOR BIDDING 1. ADD ONE DECK HATCH OPENING FOR MOST COMPARTMENTS 2. ADD CALL OUT FOR CL TRUSS CHORDS	JRP 4/6/21 JRP
2	RE-ISSUE FOR BIDDING 1. CORRECTED DISPLACEMENT	JRP 6/13/2022 JRP

REFERENCES

No.	TITLE	DWG No.
1	GENERAL ARRANGEMENT	2018-060-01-01
2	SPUD PILE	2018-060-01-03
3	OUTFITTING	2018-060-01-04
4	-	-
5	-	-

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DRWN: RJP	DATE: DEC 11, 2020	SCALE:	AS NOTED
CHKD: JRP	APPD: SAS	ACADFILE:	180600102-2
PROJECT FILE:	2018-060-01	PLOTSCALE:	1:2 ON ANSI B
ABS APPROVAL: -			
-			

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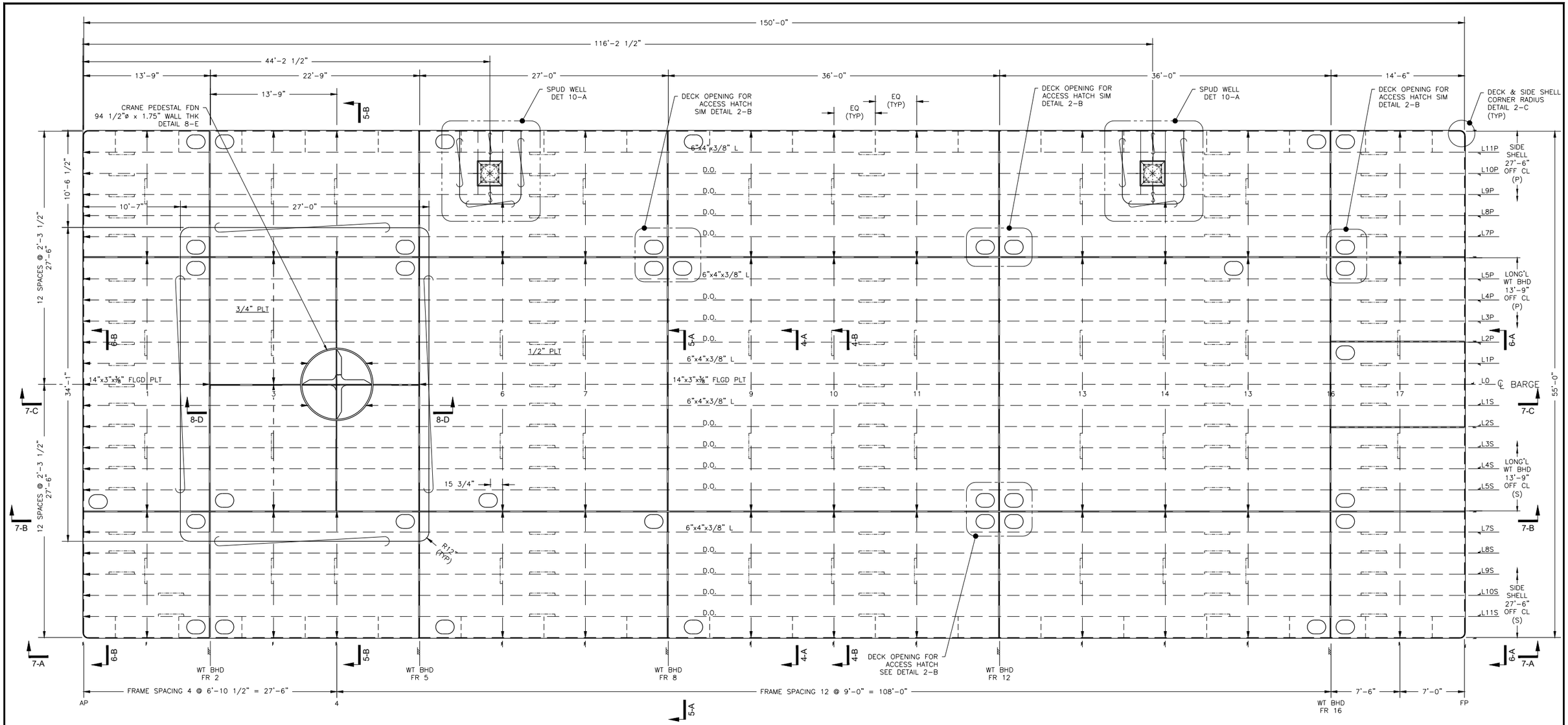
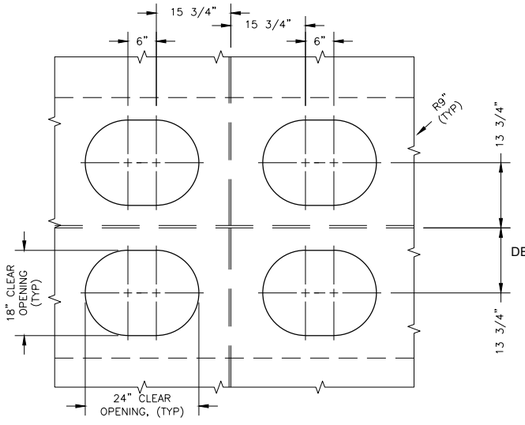
DEPARTMENT OF ENGINEERING

CRANE BARGE

STRUCTURAL SCANTLING PLAN

OWNER APPVL: -	HEC DWG No.:	2018-060-01-02	
DATE: -	SHEET 1 OF 12	REV 2	
FILE: -			





DETAIL '2-B'

DECK OPENING FOR ACCESS HATCH

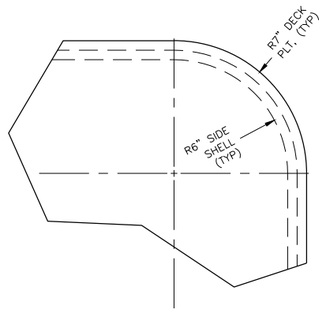
SCALE: 3/4"=1'-0"

PLAN '2-A'

PLAN OF MAIN DECK STRUCTURE

ALL MAIN DECK PLATE = 1/2" EXCEPT AS NOTED

SCALE: 3/16" = 1'-0"



DETAIL '2-C'

DECK & SIDE SHELL RADIUS

SCALE: 3"=1'-0"

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CRANE BARGE

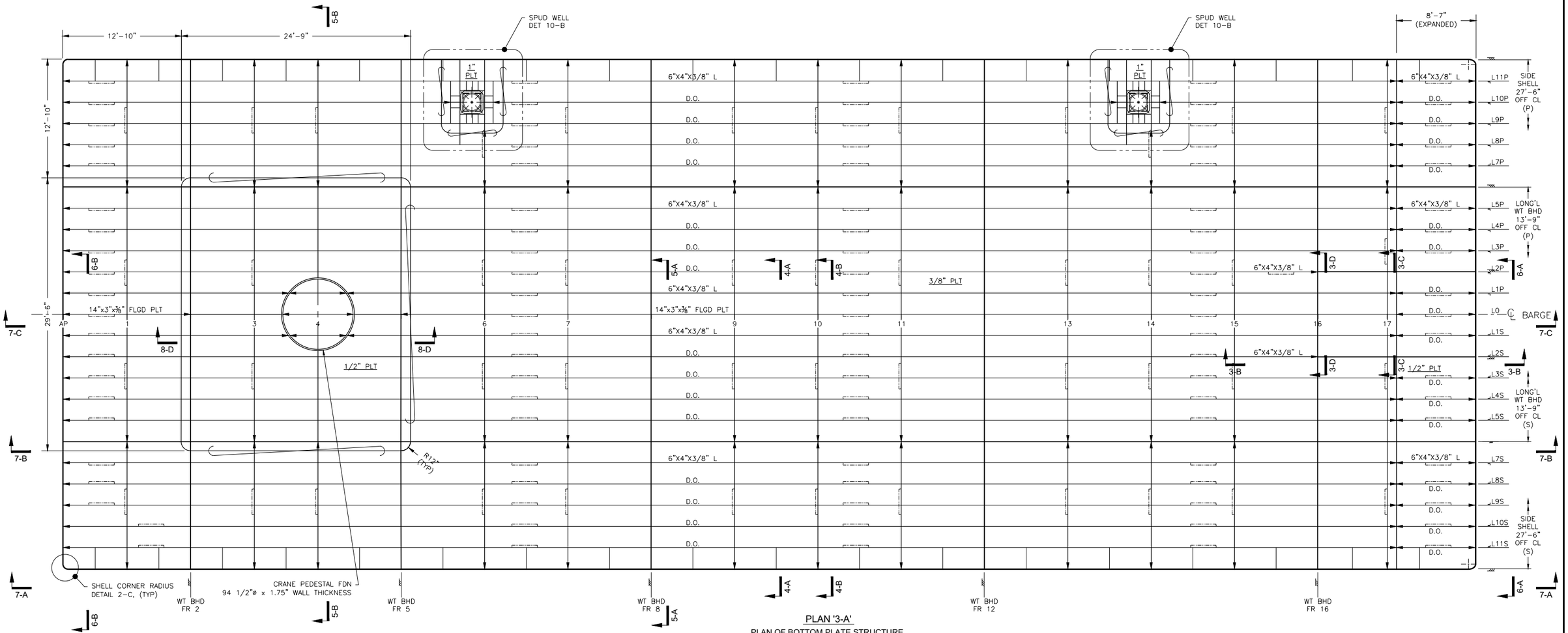
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02

SCALE: AS NOTED

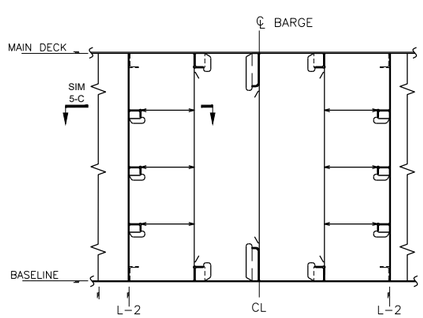
SHEET 2 OF 12

REV 2



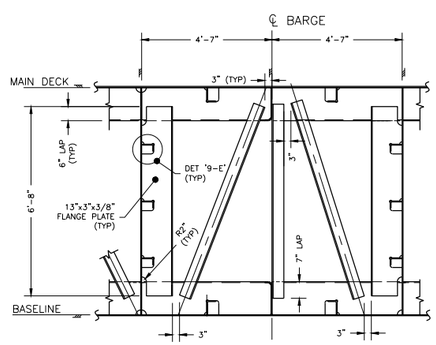
PLAN '3-A'

PLAN OF BOTTOM PLATE STRUCTURE
ALL BOTTOM PLATE = 3/8" EXCEPT AS NOTED
SCALE 3/16" = 1'-0"



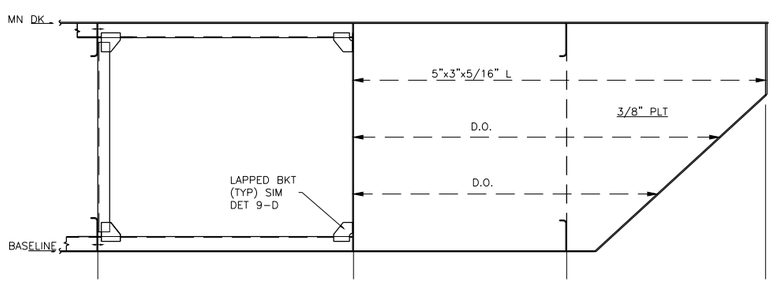
SECTION '3-D'

TRANSVERSE BULKHEAD AT FR 16
AT CL, LKG AFT
FOR INFO NOT SHOWN, SEE SECTION '5-A'
SCALE: 3/8"=1'/0"



SECTION '3-C'

WEB FRAME 17
AT CL, LKG AFT
FOR INFO NOT SHOWN, SEE SECTION '4-B'
SCALE: 3/8"=1'-0"



ELEVATION '3-B'

LONGITUDINAL BULKHEADS - FR 16 TO BOW
4'-7" OFF CL, STBD SIDE, LKG INBD
PORT SIDE SIM TO OPP HAND
SCALE: 3/8"=-1'-0"

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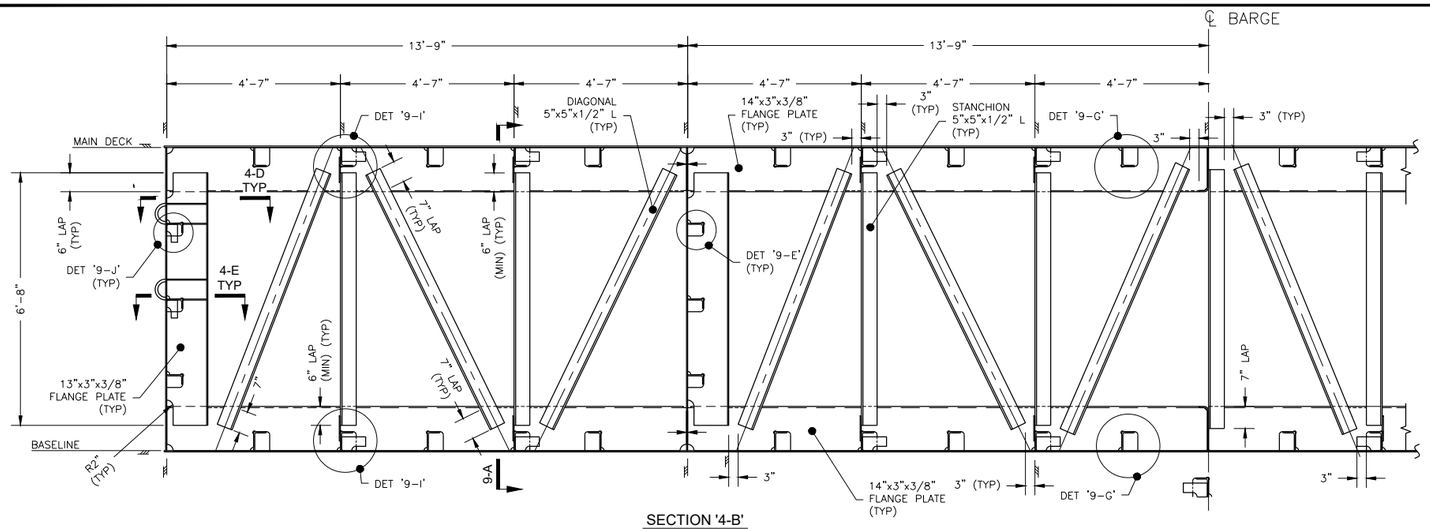
CRANE BARGE

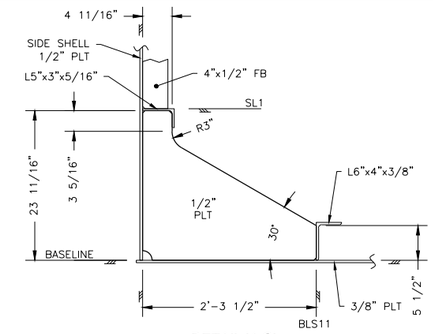
STRUCTURAL SCANTLING PLAN

HEC DWG No.:	SCALE: AS NOTED	
2018-060-01-02	SHEET 3 OF 12	REV 2



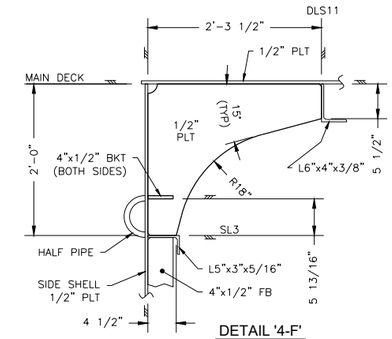
SECTION '4-B'

TYPICAL WEB FRAME
STBD SIDE, LKG AFT
PORT SIDE SIM TO OPP HAND
SCALE: 1/2"=1'/0"



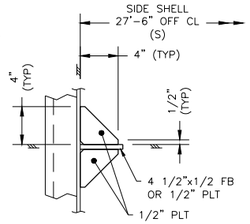
DETAIL '4-G'

BOTTOM BRACKET
SCALE: 1"=1'-0"



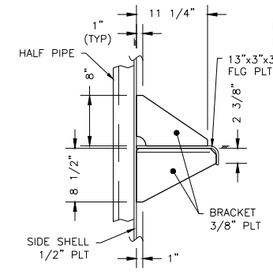
DETAIL '4-F'

TOP BRACKET
SCALE: 1"=1'-0"



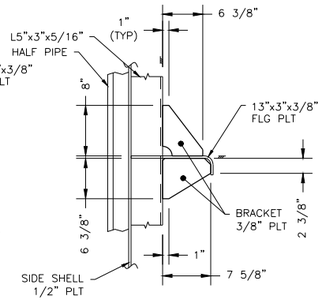
DETAIL 4-H

MID FRAME PIPE SUPPORT BRACKETS
SCALE: 1 1/2"=1'-0"



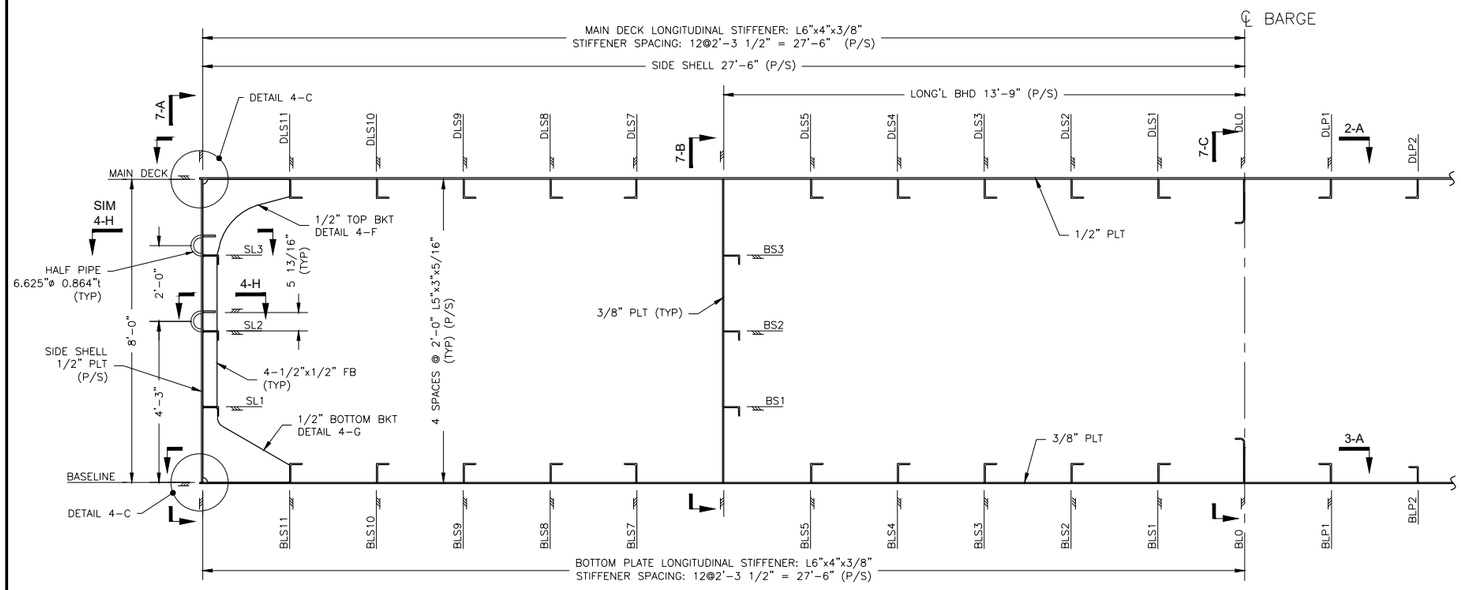
DETAIL '4-D'

HALF PIPE BRACKET
SCALE: 1"=1'-0"



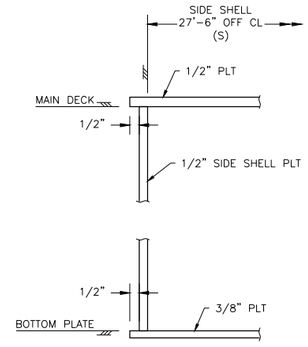
DETAIL '4-E'

HALF PIPE BRACKET AT LONG'L STIFF
SCALE: 1"=1'-0"



SECTION '4-A'

MIDSHIP SECTION
STBD SIDE, LKG AFT
PORT SIDE SIM TO OPP HAND
SCALE: 1/2"=1'/0"



DETAIL '4-C'

MAIN DECK, BOTTOM PLATE & SIDE SHELL MOLD LINE
SCALE: 3"=1'-0"

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DEPARTMENT OF ENGINEERING

CRANE BARGE

STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 4 OF 12
REV 2

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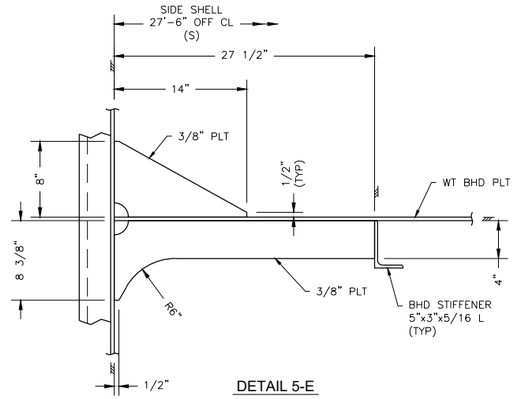
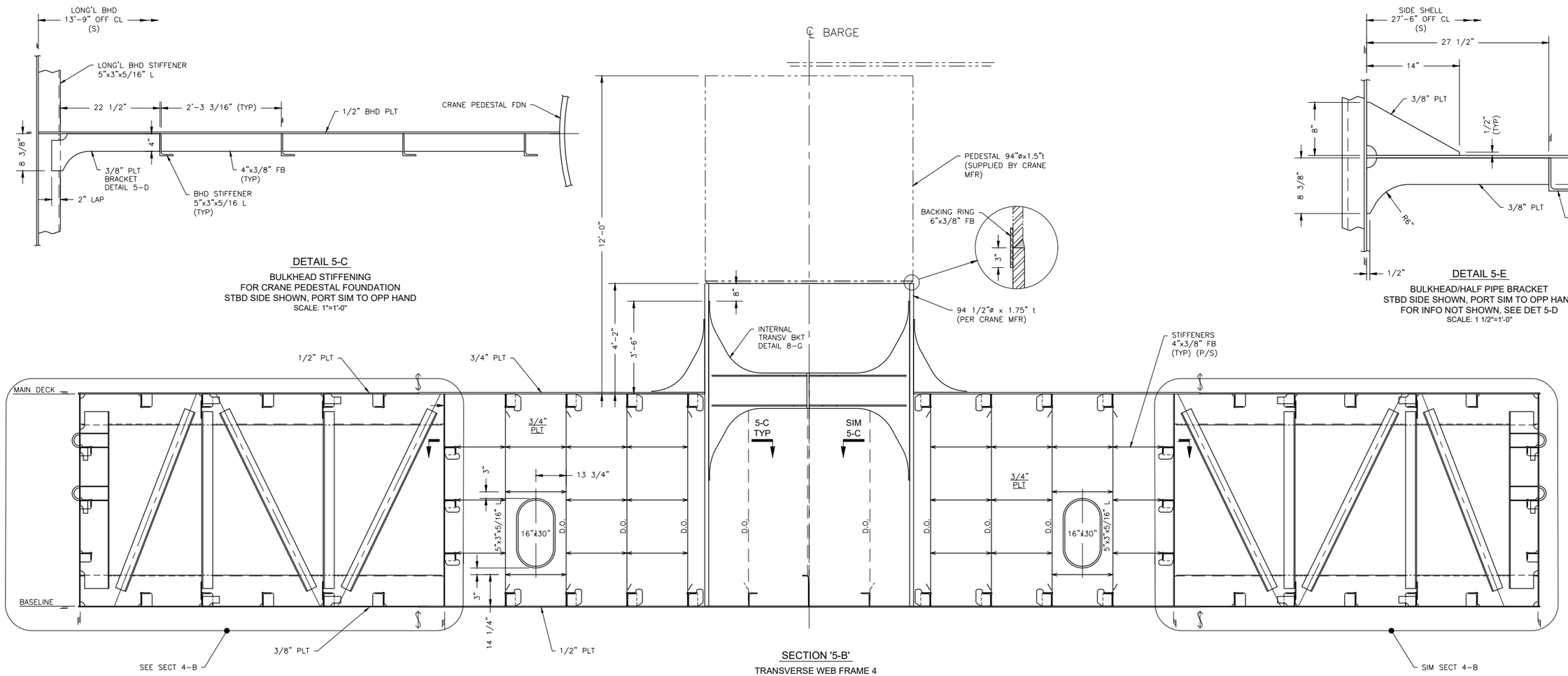
DETAIL 5-C

BULKHEAD STIFFENING
FOR CRANE PEDESTAL FOUNDATION
STBD SIDE SHOWN, PORT SIM TO OPP HAND
SCALE: 1"=1'-0"



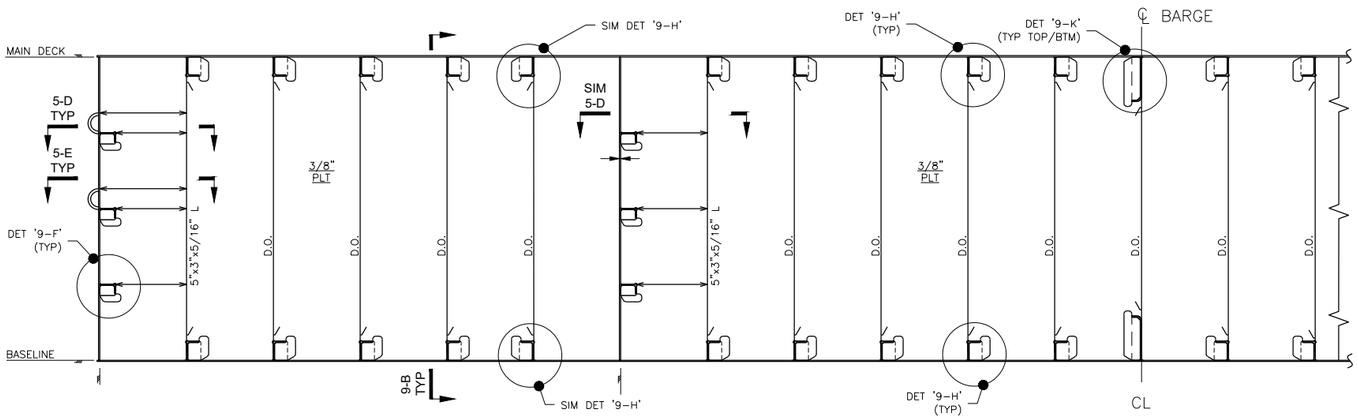
DETAIL 5-E

BULKHEAD/HALF PIPE BRACKET
STBD SIDE SHOWN, PORT SIM TO OPP HAND
FOR INFO NOT SHOWN, SEE DET 5-D
SCALE: 1 1/2"=1'-0"



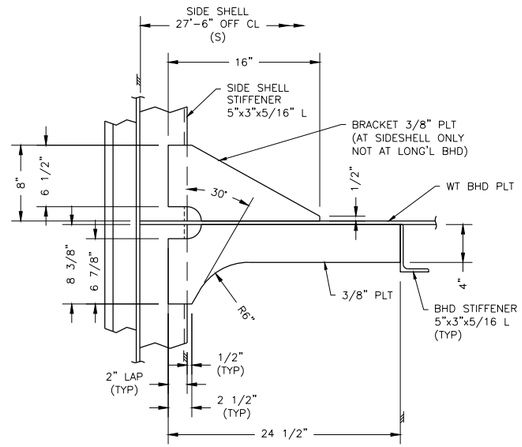
SECTION '5-B'

TRANSVERSE WEB FRAME 4
LKG AFT
SCALE: 1/2"=1'-0"



SECTION '5-A'

TYPICAL TRANSVERSE BULKHEAD
STBD SIDE, LKG AFT
PORT SIDE SIM TO OPP HAND
SCALE: 1/2"=1'0"



DETAIL 5-D

BULKHEAD BRACKET
STBD SIDE SHOWN, PORT SIM TO OPP HAND
SCALE: 1 1/2"=1'-0"

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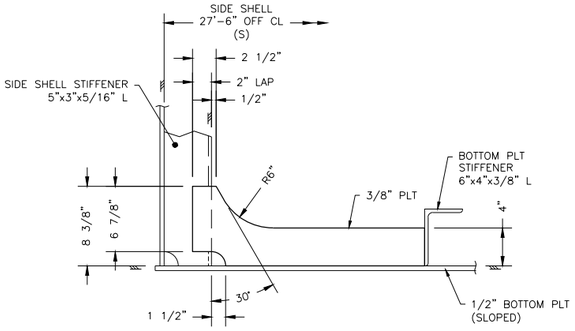
DEPARTMENT OF ENGINEERING

CRANE BARGE

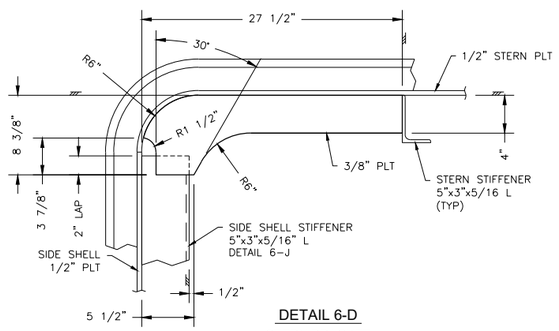
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 5 OF 12
REV 2



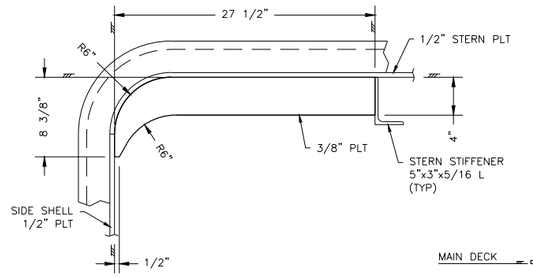
DETAIL 6-C

BOW BRACKET
STBD SIDE SHOWN, PORT SIM TO OPP HAND
SCALE: 1 1/2"=1'-0"



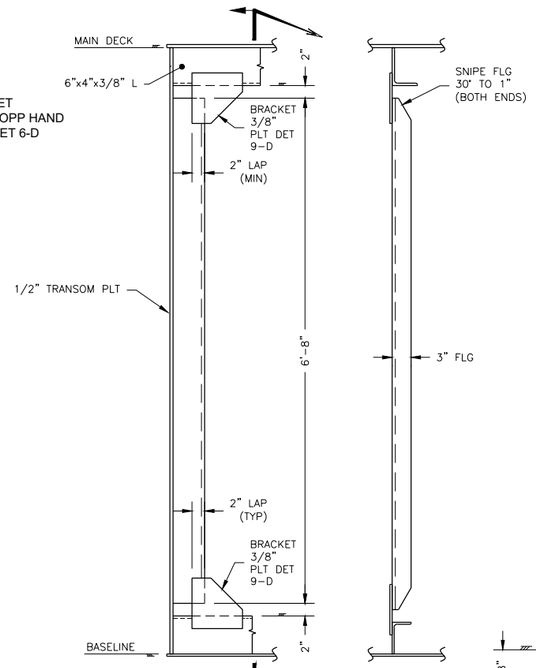
DETAIL 6-D

STERN BRACKET
STBD SIDE SHOWN, PORT SIM TO OPP HAND
SCALE: 1 1/2"=1'-0"



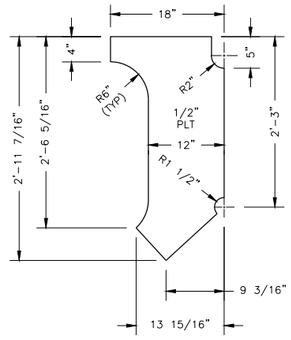
DETAIL 6-F

STERN/HALF PIPE BRACKET
STBD SIDE SHOWN, PORT SIM TO OPP HAND
FOR INFO NOT SHOWN, SEE DET 6-D
SCALE: 1 1/2"=1'-0"



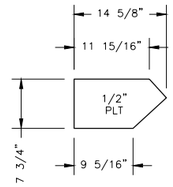
DETAIL '6-E'

TYPICAL TRANSOM STIFFENER
SCALE: 1"=1'-0"



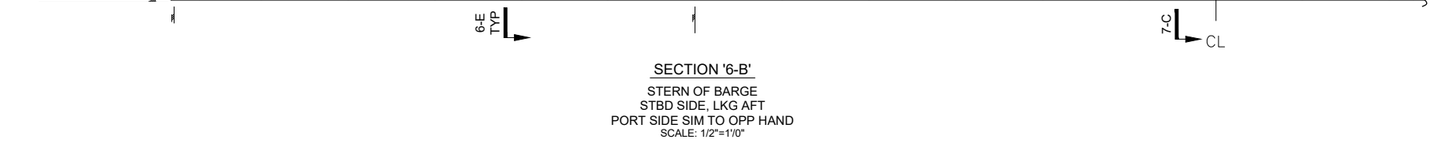
DETAIL 6-H

FWD TRANSITION BRACKET
(20) REQD
SCALE: 1"=1'-0"



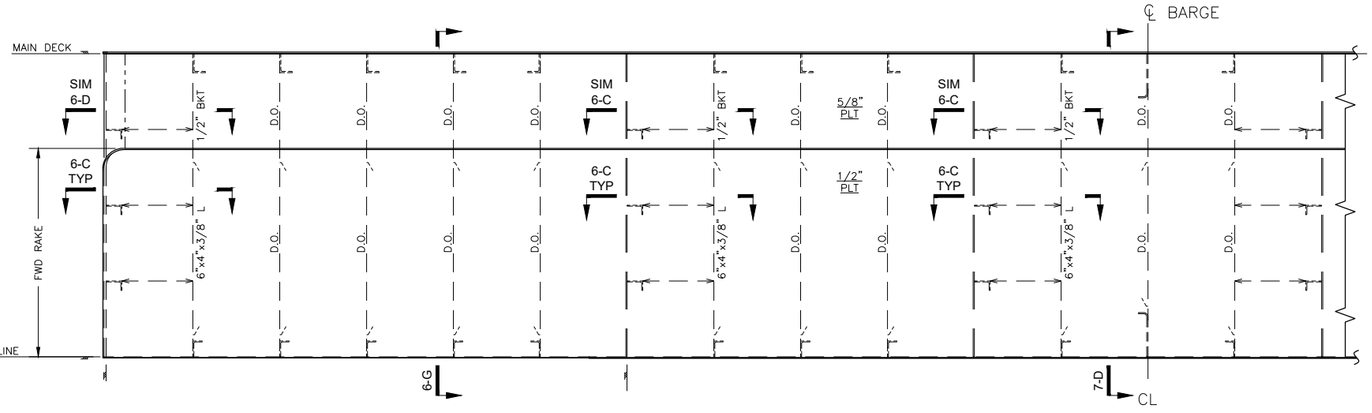
DETAIL 6-I

FWD TRANSITION LAPPED BRACKET
(20) REQD
SCALE: 1"=1'-0"



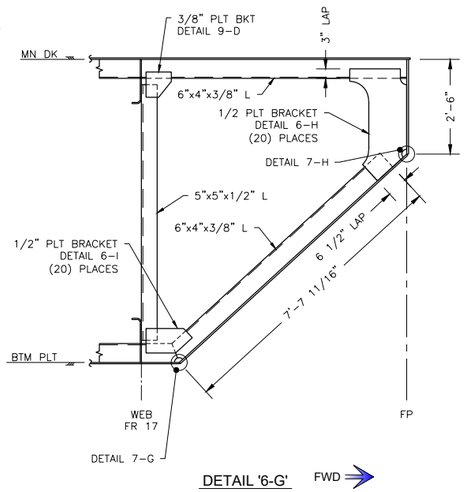
SECTION '6-B'

STERN OF BARGE
STBD SIDE, LKG AFT
PORT SIDE SIM TO OPP HAND
SCALE: 1/2"=1'/0"



SECTION '6-A'

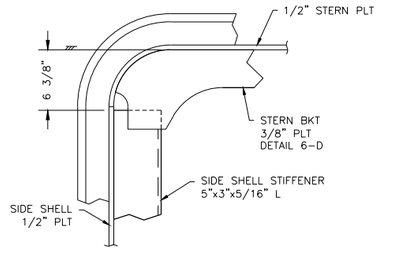
BOW OF BARGE
STBD SIDE, LKG AFT
PORT SIDE SIM TO OPP HAND
SCALE: 1/2"=1'/0"



DETAIL '6-G'

BOW FRAMING DETAIL
SCALE: 1/2"=1'-0"

FWD



DETAIL 6-J

SIDE SHELL STIFFENER END
STBD SIDE SHOWN, PORT SIM TO OPP HAND
SCALE: 1 1/2"=1'-0"

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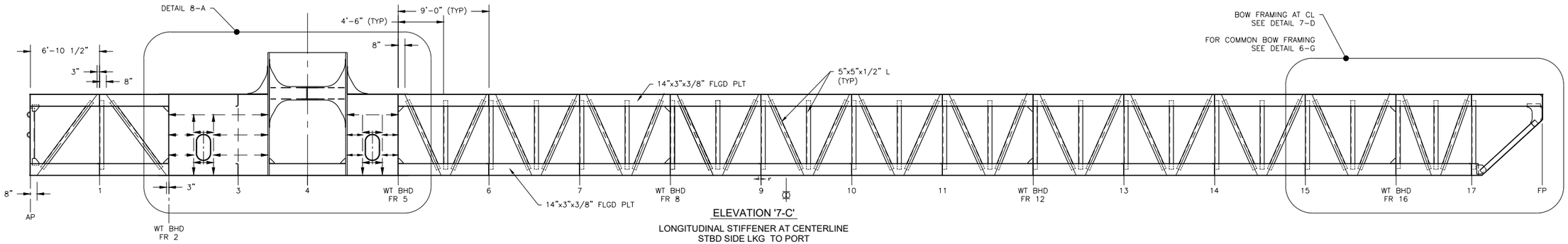
DEPARTMENT OF ENGINEERING

CRANE BARGE

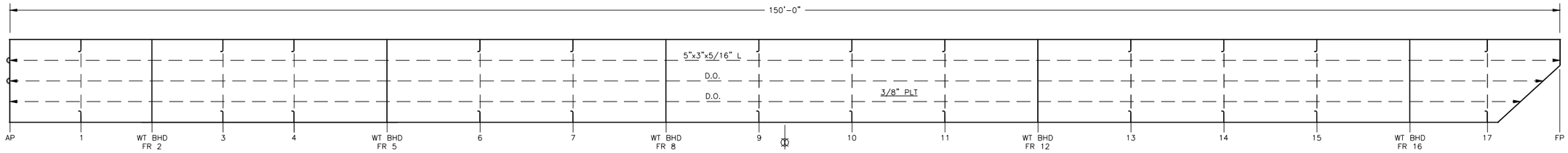
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 6 OF 12
REV 2



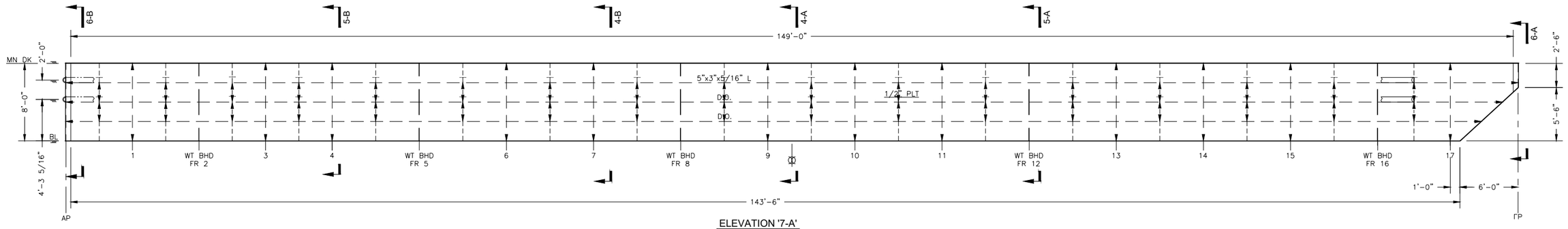
ELEVATION '7-C'

LONGITUDINAL STIFFENER AT CENTERLINE
STBD SIDE LKG TO PORT
SCALE: 3/16"=-1'-0"



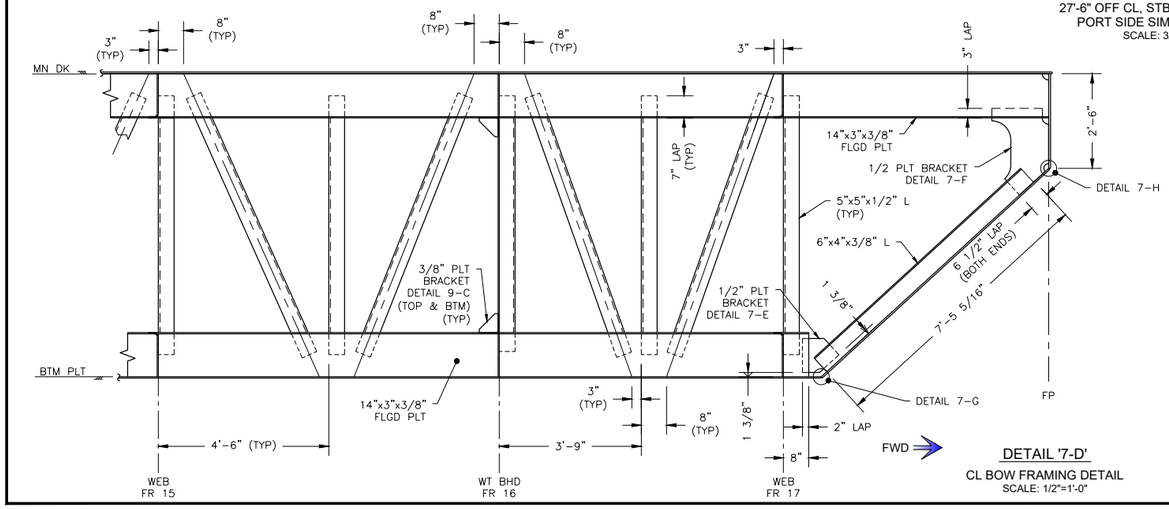
ELEVATION '7-B'

LONGITUDINAL BULKHEAD
13'-9" OFF CL, STBD SIDE, LKG INBD
PORT SIDE SIM TO OPP HAND
SCALE: 3/16"=-1'-0"



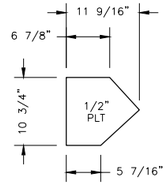
ELEVATION '7-A'

SIDE SHELL PLATE
27'-6" OFF CL, STBD SIDE, LKG INBD
PORT SIDE SIM TO OPP HAND
SCALE: 3/16"=1'-0"



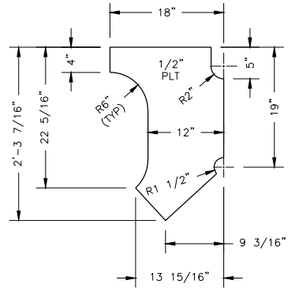
DETAIL '7-D'

CL BOW FRAMING DETAIL
SCALE: 1/2"=1'-0"



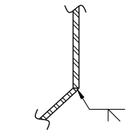
DETAIL 7-E

CL TRANSITION LAPPED BRACKET
SCALE: 1"=1'-0"



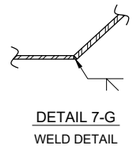
DETAIL 7-F

CL TRANSITION BRACKET
SCALE: 1"=1'-0"



DETAIL 7-H

WELD DETAIL
SCALE: 1-1/2"=1'-0"



DETAIL 7-G

WELD DETAIL
SCALE: 1-1/2"=1'-0"

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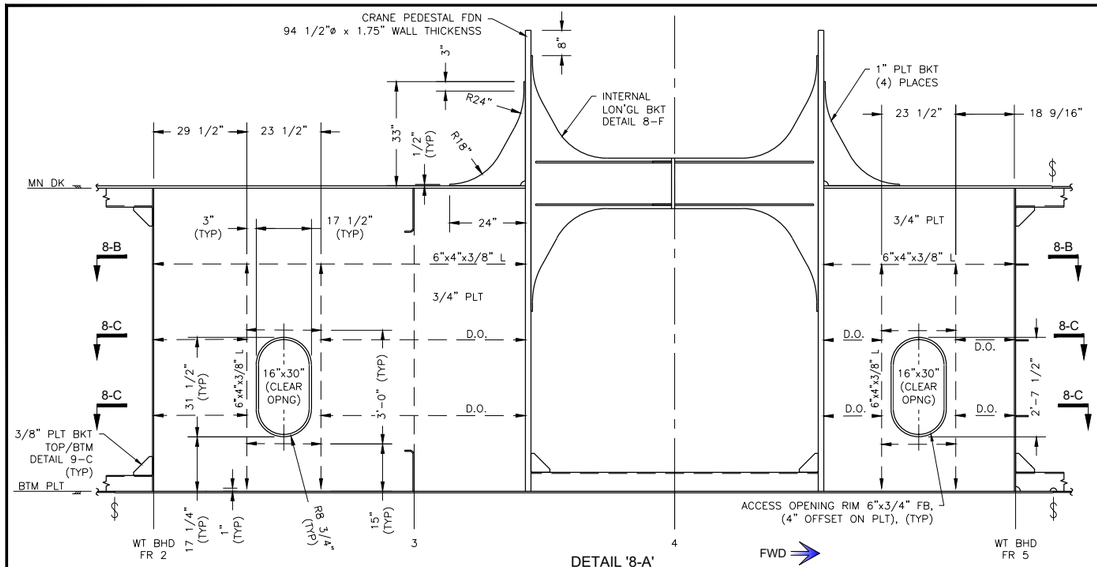
CRANE BARGE

STRUCTURAL SCANTLING PLAN

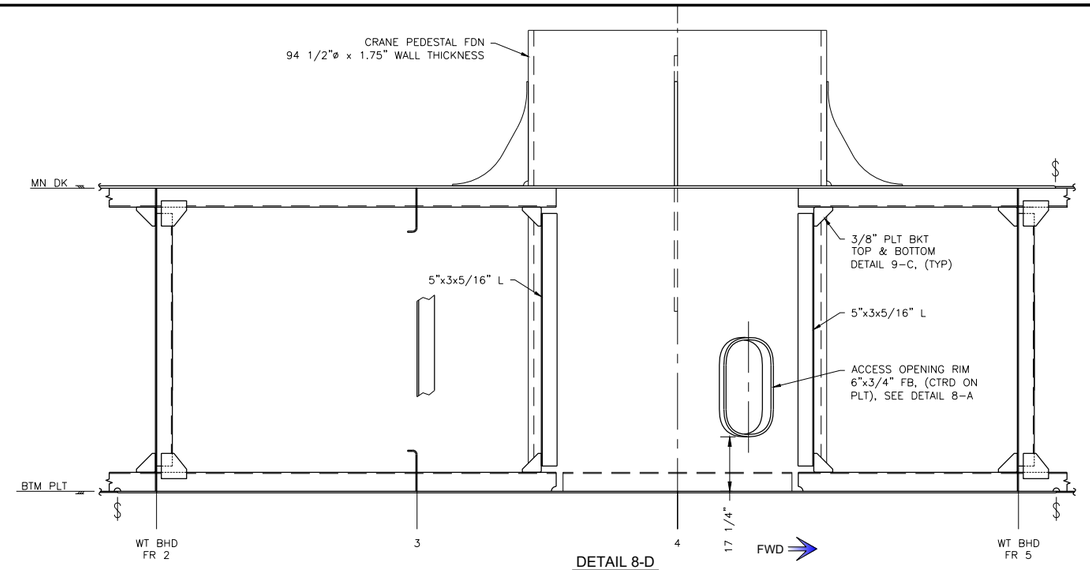
HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 7 OF 12
REV 2



DETAIL '8-A'

CRANE PEDESTAL FOUNDATION AT CL

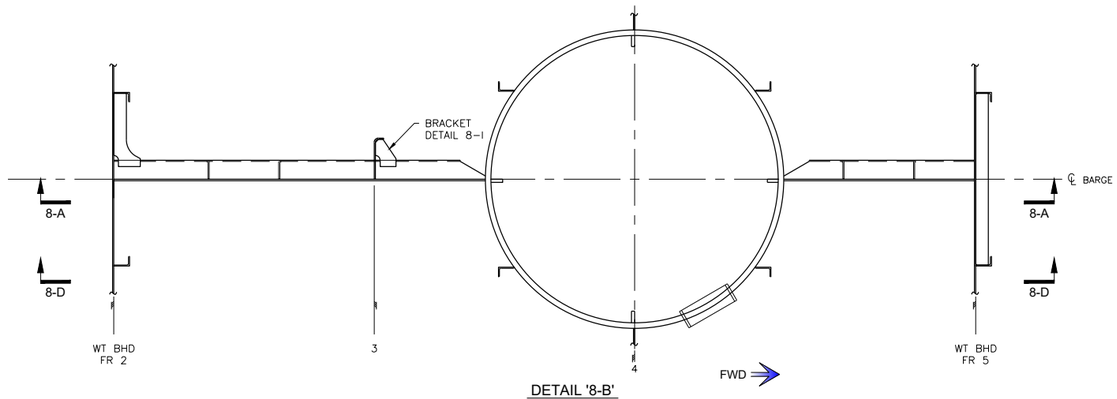
SCALE: 1/2"=1'-0"



DETAIL 8-D

CRANE PEDESTAL STIFFINING AT L1S
L1P SIM TO OPP HAND

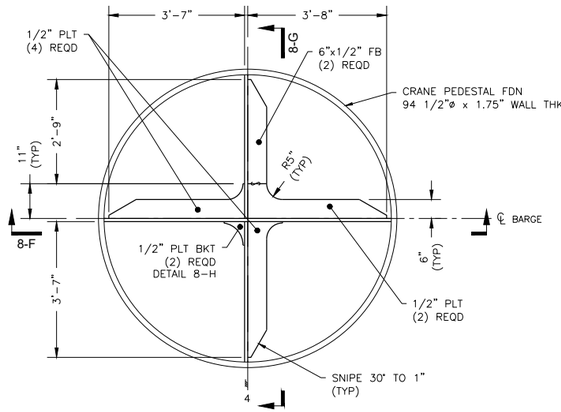
SCALE: 1/2"=1'-0"



DETAIL '8-B'

CRANE PEDESTAL, BHD STIFFENER

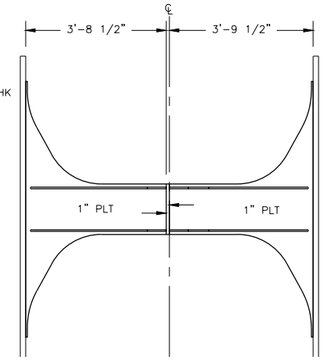
SCALE: 1/2"=1'-0"



DETAIL '8-E'

INTERNAL CRANE PEDESTAL BRACKET

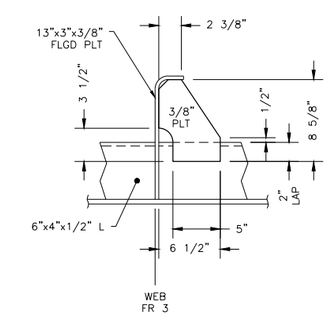
SCALE: 1/2"=1'-0"



DETAIL 8-G

INTERNAL TRANSV BRACKET
AT FR 4, LKG AFT
FOR INFO NOT SHOWN, SEE DET 8-F

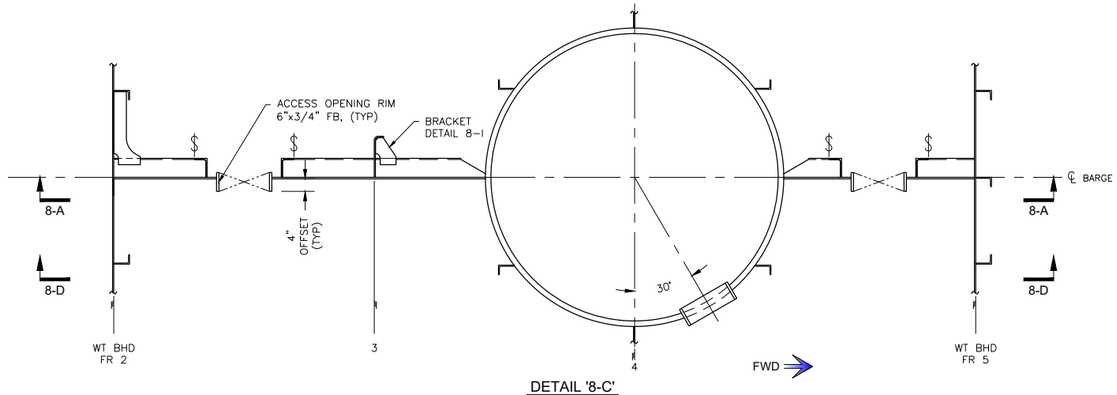
SCALE:: 1/2"=1'-0"



DETAIL 8-I

WEB FR 3 BRACKETS AT CL
(3) REQD

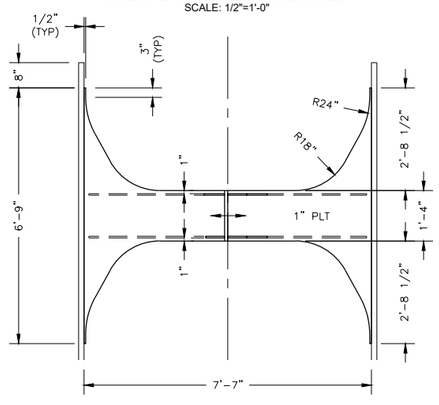
SCALE: 1 1/2"=1'-0"



DETAIL '8-C'

CRANE PEDESTAL, BHD STIFFENER IWO ACCESS OPENING

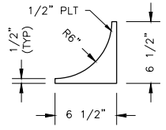
SCALE: 1/2"=1'-0"



DETAIL 8-F

INTERNAL LONG'L BRACKET
STBD SIDE LKG TO PORT

SCALE:: 1/2"=1'-0"



DETAIL 8-H

TYPICAL RADIUS BRACKET
(8) REQD

SCALE: 1-1/2"=1'-0"

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CRANE BARGE

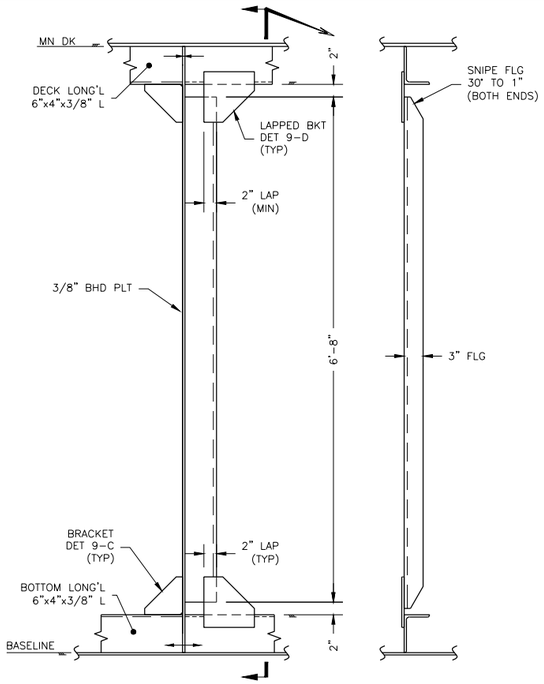
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02

SCALE: AS NOTED

SHEET 8 OF 12

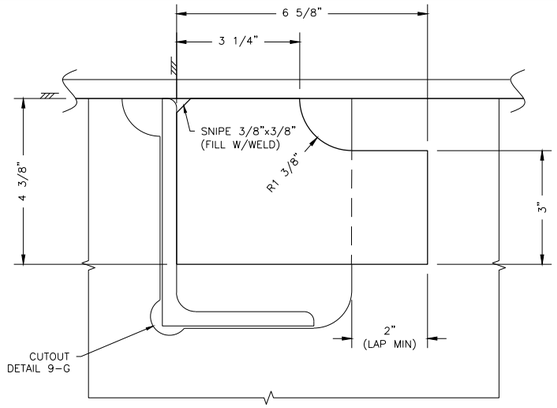
REV 2



DETAIL '9-B'

TYPICAL BHD STIFFENER

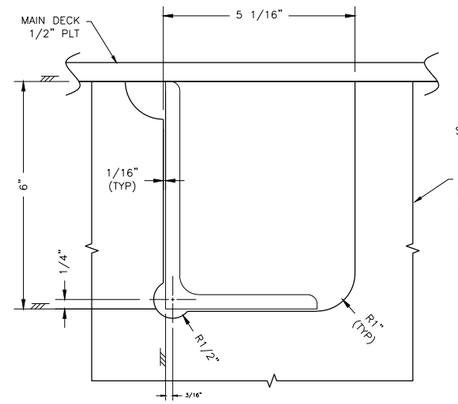
SCALE: 1"=1'-0"



DETAIL 9-I

NON-TIGHT CUTOUT COLLAR PLATE
FOR 6"x4"x3/8" L

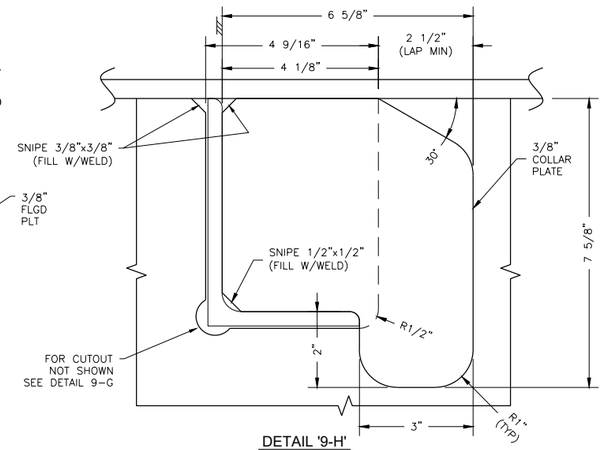
SCALE: 6"=1'-0"



DETAIL '9-G'

NON-TIGHT CUTOUT FOR 6"x4"x3/8" L

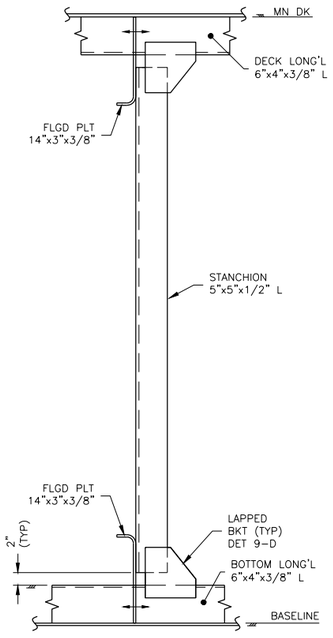
SCALE: 6"=1'-0"



DETAIL '9-H'

WT CUTOUT FOR 6"x4"x3/8" L

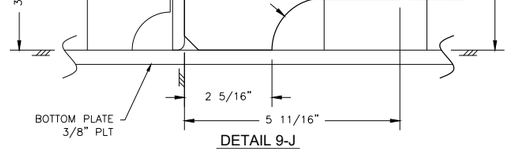
SCALE: 6"=1'-0"



DETAIL '9-A'

TYPICAL WEB FRAME STANCHION

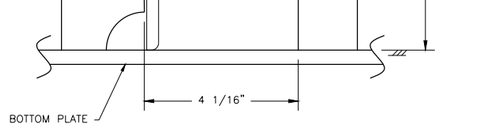
SCALE: 1"=1'-0"



DETAIL 9-J

NON-TIGHT CUTOUT COLLAR PLATE
FOR 5"x3"x5/16" L

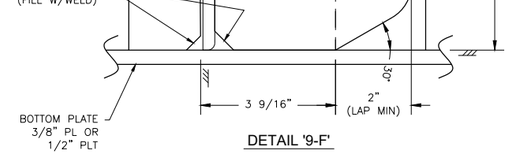
SCALE: 6"=1'-0"



DETAIL '9-E'

NON-TIGHT CUTOUT FOR 5"x3"x5/16" L

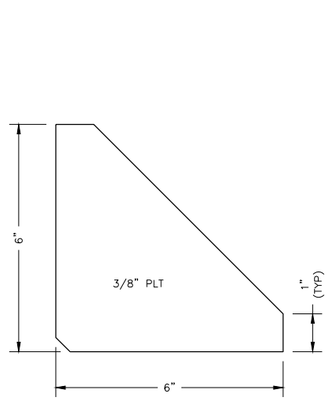
SCALE: 6"=1'-0"



DETAIL '9-F'

WT CUTOUT FOR 5"x3"x5/16" L

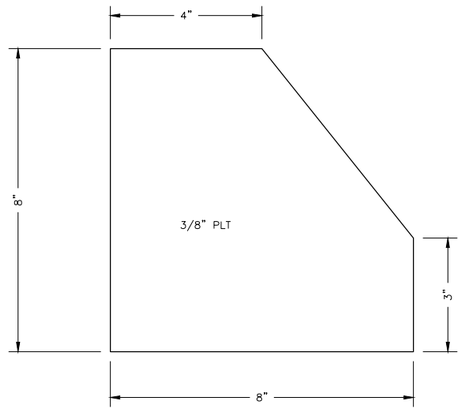
SCALE: 6"=1'-0"



DETAIL '9-C'

TYPICAL BRACKET

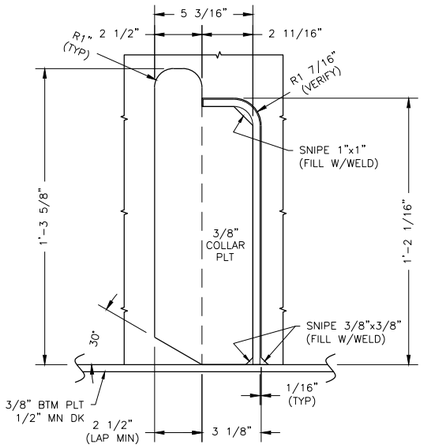
SCALE: 6"=1'-0"



DETAIL '9-D'

TYPICAL LAPPED BRACKET

SCALE : 6"=1'-0"



DETAIL '9-K'

WT-CUTOUT FOR 13"x3"x3/8" FLANGED PLATE

SCALE: 3"=1'-0"

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CRANE BARGE

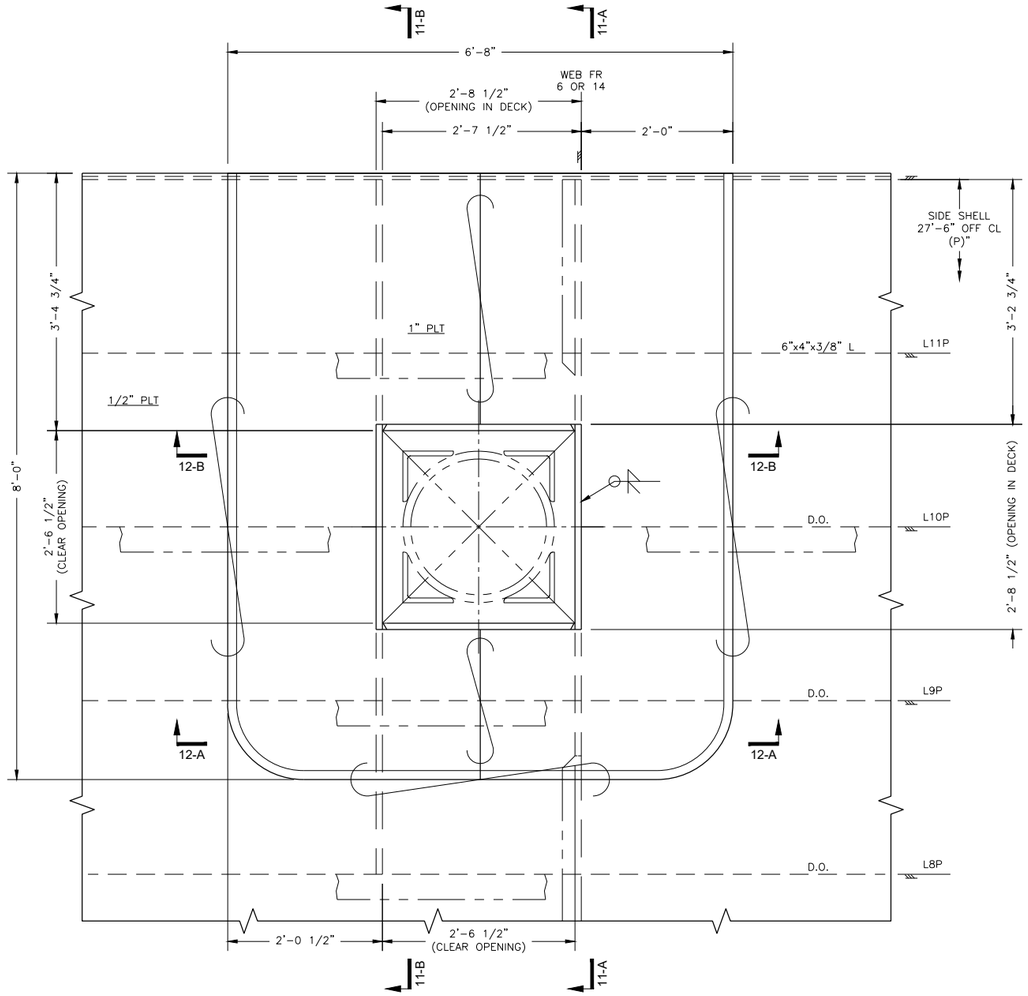
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02

SCALE: AS NOTED

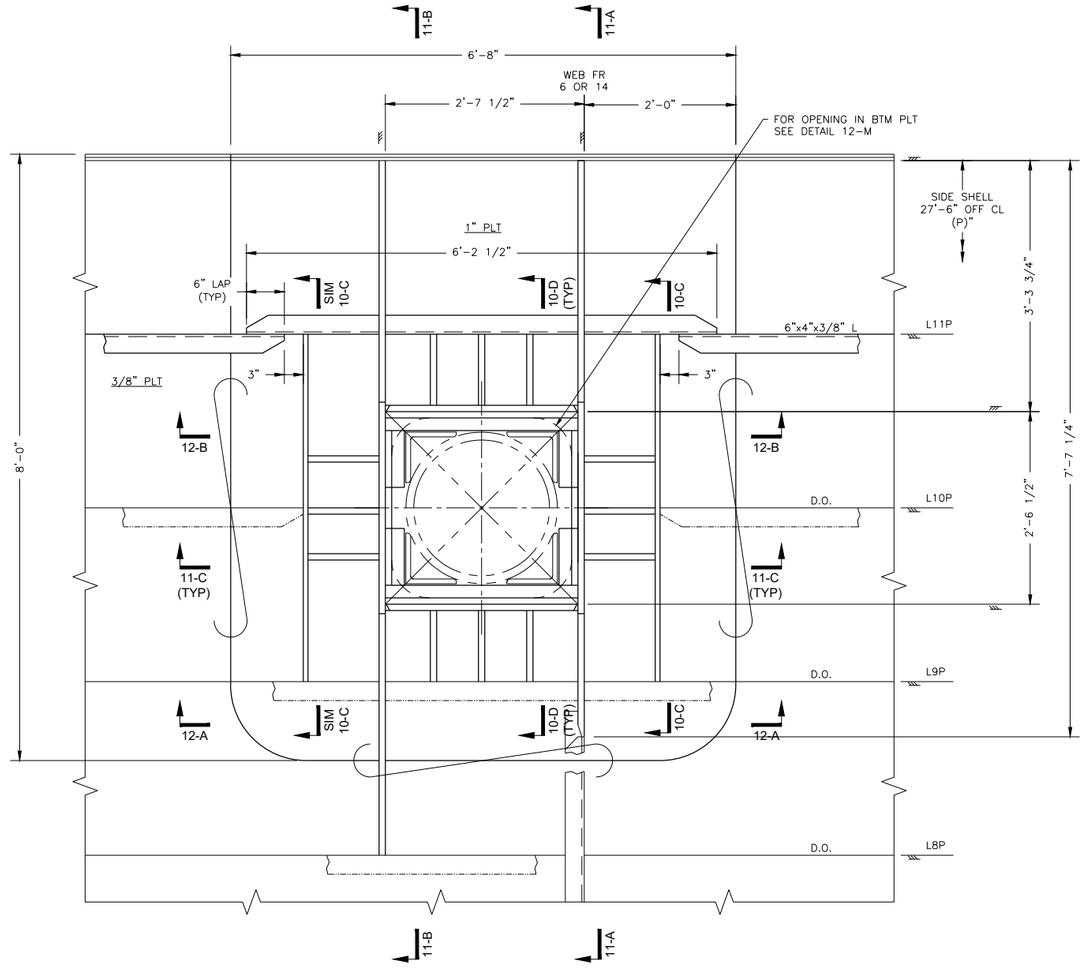
SHEET 9 OF 12

REV 2



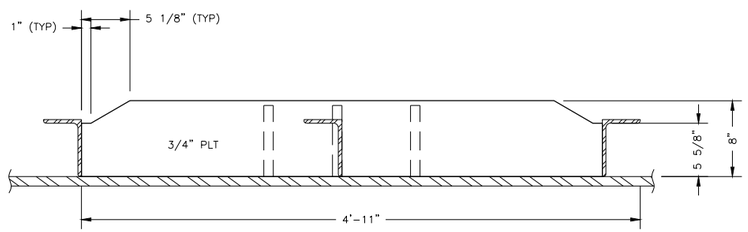
DETAIL 10-A

SPUD WELL AT MAIN DECK
PORT SIDE, AT WEB FRS 6 & 14
SCALE: 1"=1'-0"



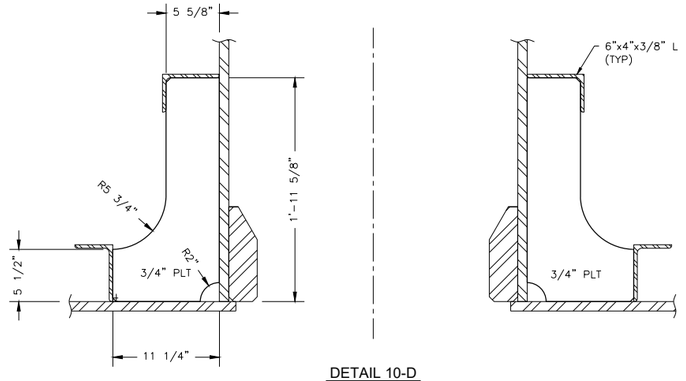
DETAIL 10-B

SPUD WELL AT BOTTOM PLATE
PORT SIDE, AT WEB FRS 6 & 14
FOR INFO NOT SHOWN, SEE DETAIL 10-A
SCALE: 1"=1'-0"



DETAIL 10-C

TRANSVERSE BRACKET
(2) REQD
SCALE: 1-1/2"=1'-0"



DETAIL 10-D

TRANSVERSE BASE BRACKETS
(3) OF EACH REQD
SCALE: 1-1/2"=1'-0"

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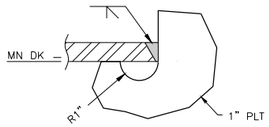
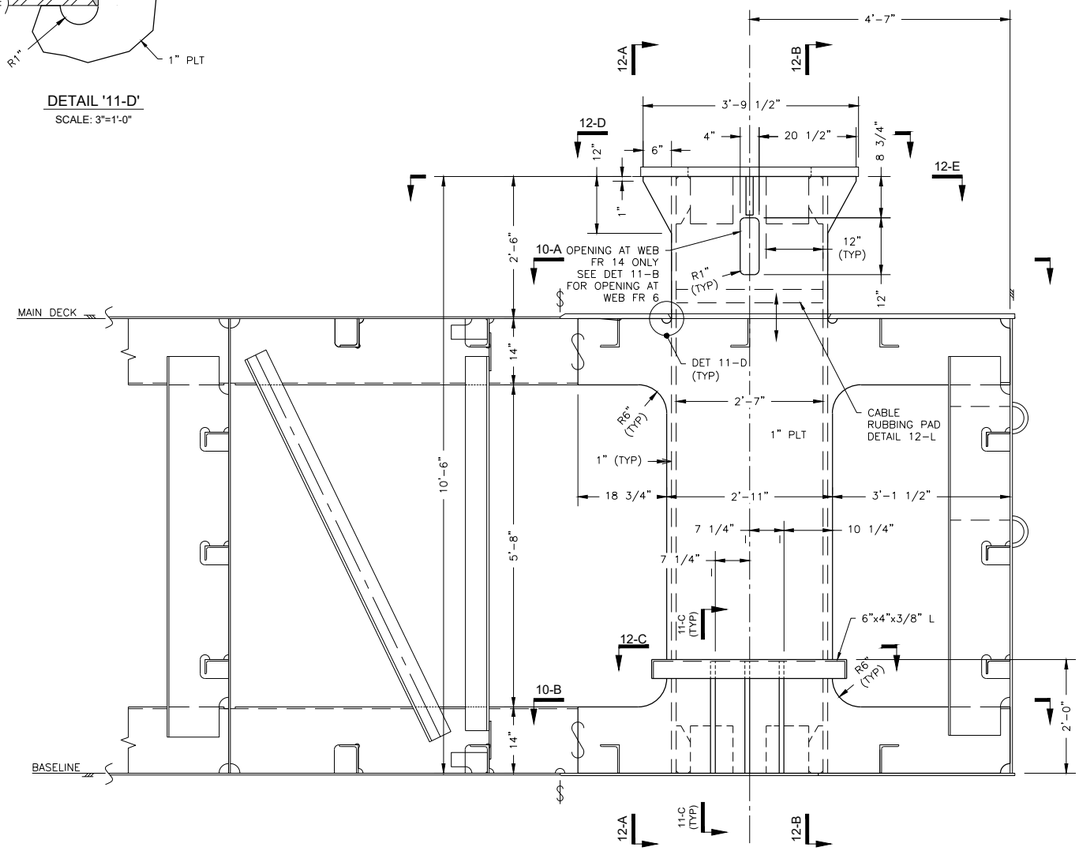
STRUCTURAL SCANTLING PLAN

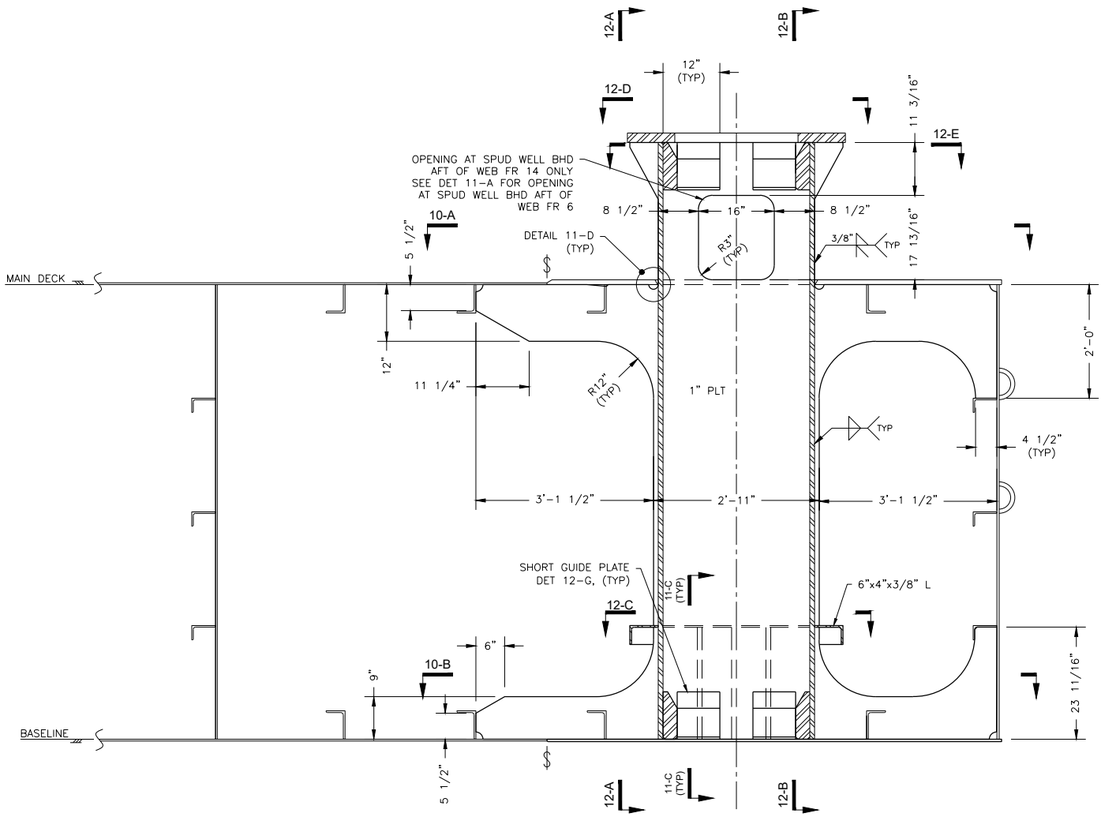
HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 10 OF 12
REV 2



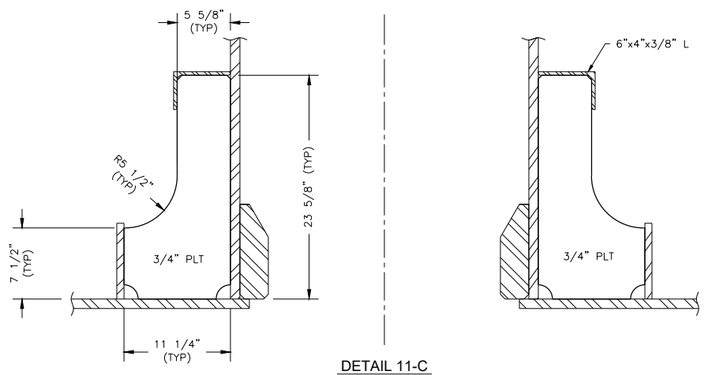
DETAIL '11-D'
SCALE: 3"=1'-0"



DETAIL 11-A
SPUD WELL AT WEB FRAME 14 SHOWN
SPUD WELL AT WEB FRAME 6 SIMILAR EXCEPT AS NOTED
22'-11" OFF CL, PORT SIDE, LKG AFT
SCALE: 3/4"=1'-0"



DETAIL 11-B
SPUD WELL AFT BULKHEAD
2'-7 1/2" AFT OF WEB FRAME 14 SHOWN
AFT OF WEB FRAME 6 SIMILAR EXCEPT AS NOTED
22'-11" OFF CL, PORT SIDE, LKG AFT
FOR INFO NOT SHOWN, SEE DET 11-A
SCALE: 3/4"=1'-0"



DETAIL 11-C
LONGITUDINAL BASE BRACKETS
(6) REQD
SCALE: 1-1/2"=1'-0"

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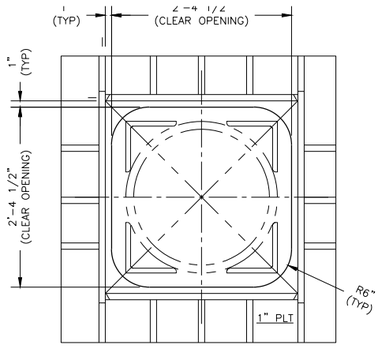
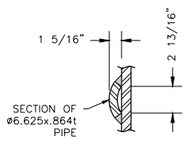
STRUCTURAL SCANTLING PLAN

HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 11 OF 12
REV 2



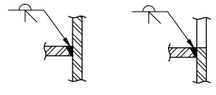
DETAIL 12-M

OPENING IN BOTTOM PLATE
GUIDE PLATES NOT SHOWN FOR CLARITY
FOR INFO NOT SHOWN, SEE PLAN 10-B
SCALE: 1"=1'-0"



DETAIL 12-L

CABLE RUBBING PAD
SCALE: 1-1/2"=1'-0"

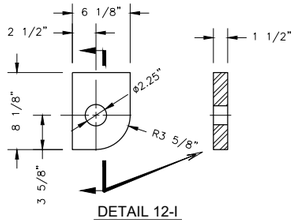


DETAIL 12-K

WELD DETAIL
SCALE: 1-1/2"=1'-0"

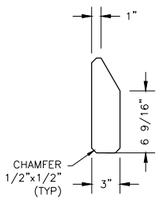
DETAIL 12-J

WELD DETAIL
SCALE: 1-1/2"=1'-0"



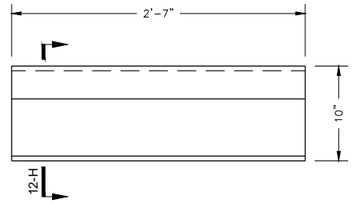
DETAIL 12-I

PADEYE
SCALE: 1-1/2"=1'-0"



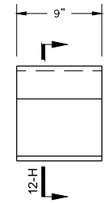
DETAIL 12-H

TYPICAL GUIDE PLATE
CROSS SECTION
SCALE: 1-1/2"=1'-0"



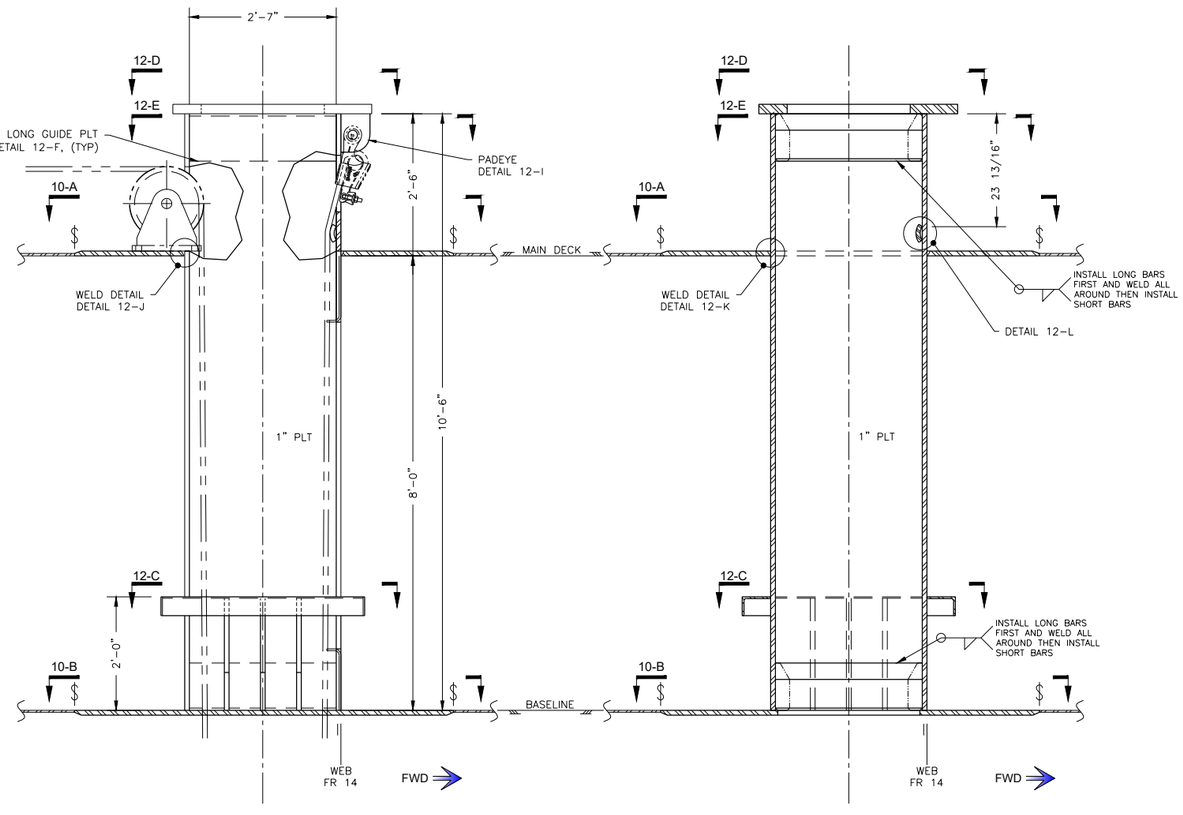
DETAIL 12-F

LONG GUIDE PLATE
(4) REQD PER SPUD WELL
SCALE: 1-1/2"=1'-0"



DETAIL 12-G

SHORT GUIDE PLATE
(8) REQD PER SPUD WELL
SCALE: 1-1/2"=1'-0"

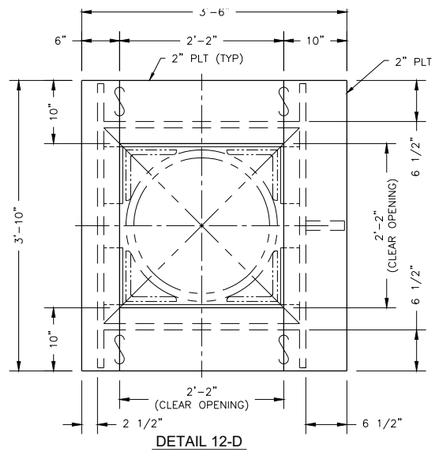


DETAIL 12-A

SPUD WELL INBD BULKHEAD AT WEB FR 14 SHOWN
SPUD WELL INBD BULKHEAD AT WEB FR 6 SIMILAR, BUT RIGGING MIRRORED
21'-6 1/2" OFF CL, PORT SIDE, LKG OUTBD
SCALE: 3/4"=1'-0"

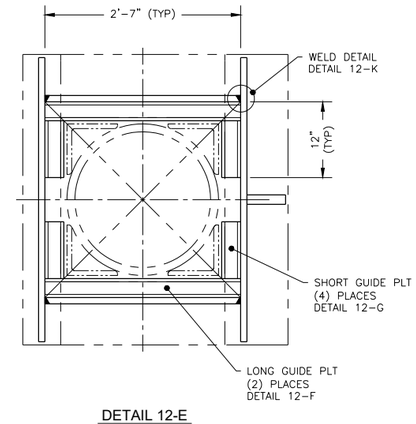
DETAIL 12-B

SPUD WELL OUTBD BULKHEAD AT WEB FR 14 SHOWN
SPUD WELL OUTBD BULKHEAD AT WEB FR 6 SIM
24'-3 1/2" OFF CL, PORT SIDE, LKG OUTBD
FOR INFO NOT SHOWN, SEE DET 12-A
SCALE: 3/4"=1'-0"



DETAIL 12-D

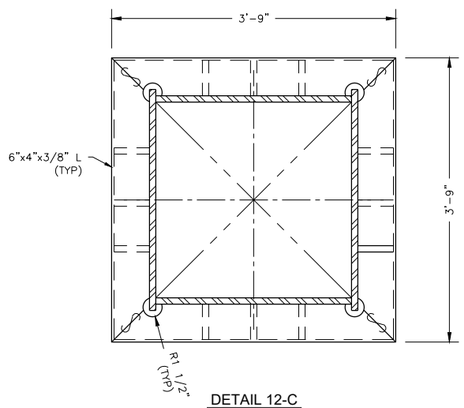
TOP OF SPUD WELL
FR 14 SHOWN, FR 6 SIM BUT TO OPP HAND
SCALE: 1"=1'-0"



DETAIL 12-E

SPUD GUIDE PLATES
AT TOP OF SPUD WELL
FR 14 SHOWN, FR 6 SIM BUT TO OPP HAND
SCALE: 1"=1'-0"

FWD



DETAIL 12-C

SPUD WELL STIFFENING
SCALE: 1"=1'-0"

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STRUCTURAL SCANTLING PLAN

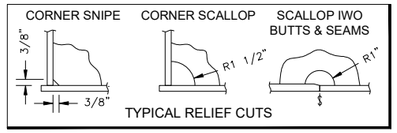
HEC DWG No.: 2018-060-01-02
SCALE: AS NOTED
SHEET 12 OF 12
REV 2

EXHIBIT A-3 – Spud Pile

GENERAL NOTES

1. THIS DRAWING PRESENTS DETAILS FOR TWO SPUD PILES FOR THE PORT OF SAN FRANCISCO CRANE BARGE.
2. ALL PLAN VIEWS ARE TOP LOOKING DOWN. ALL SECTIONS ARE LOOKING AFT. ELEVATIONS VIEWS ARE AS FOLLOWS:
   - FROM STARBOARD SIDE: OUTBOARD LOOKING INBOARD
   - FROM PORT SIDE: INBOARD LOOKING OUTBOARD
3. DRAWING UNITS ARE IN FEET & INCHES.
4. ALL MATERIAL, WELDING, FABRICATION AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH APPLICABLE ABS RULES AND TO THE SATISFACTION OF THE OWNER.
5. THERE SHALL BE NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE.
6. ALL NEW STEEL IS TO BE ABS GRADE A OR ASTM A-36 UNLESS NOTED OTHERWISE. (1)
7. EXCEPT WHERE NOTED, ALL WELDS ARE TO BE DOUBLE CONTINUOUS FILLETS WRAPPED AT THE ENDS. UNLESS OTHERWISE INDICATED, WELDS SHALL BE SIZED PER THE TABLE SHOWN TO THE RIGHT. SIZES PERTAIN TO THE LEG LENGTH.
8. PROVIDE RELIEF CUTS AS SHOWN IN THE TABLE TO THE RIGHT. IF NONE IS SHOWN ON THE DETAIL, IT IS ASSUMED TO HAVE THE 3/8"x3/8" CORNER SNIPE AND IS TO BE FILLED WITH WELD. SCALLOPS SHALL HAVE RADII AS SHOWN IN THE TABLE BELOW UNLESS NOTED OTHERWISE.

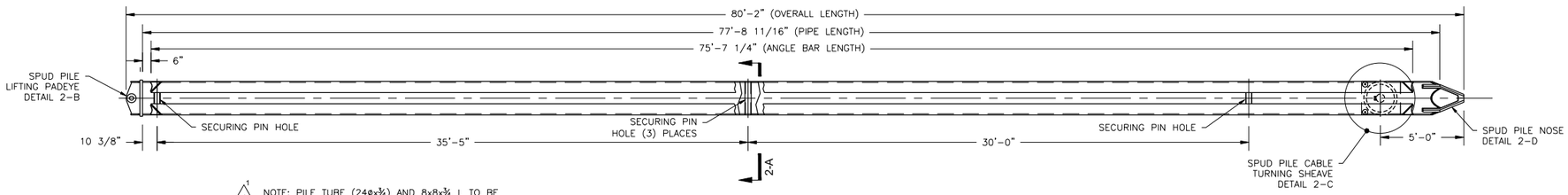
FILLET WELD SIZING TABLE							
THICKNESS OF THINNER PLATE	≤1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	≥3/4"
FILLET WELD LEG SIZE	3/16"	7/32"	7/32"	1/4"	5/16"	5/16"	3/8"



DRAWING INDEX

ABBREVIATIONS

ABL — ABOVE BASELINE
ABT — ABOUT
BHD — BULKHEAD
BKT — BRACKET
BTM — BOTTOM
CHK — CHOCK
CJP — COMPLETE JOINT PENETRATION
CL — CENTERLINE
CLR — CLEAR
CMG — COAMING
CTR — CENTER
DBL — DOUBLE
DET — DETAIL
D.O. — DITTO (SAME AS)
EXISTG — EXISTING
FR — FRAME
FWD — FORWARD
GDR — GIRDER
LONGL — LONGITUDINAL
NS — NEAR SIDE
N&F — NEAR & FAR
OPNG — OPENING
OUTBD — OUTBOARD
PLT — PLATE
PLTG — PLATING
REF — REFERENCE
STD — STANDARD
T&B — TOP & BOTTOM
TYP — TYPICAL
WT — WATERTIGHT



(1) NOTE: PILE TUBE (24ø x ¾) AND 8x8x¾ L TO BE ASTM A-572 GR 50.

ELEVATION '1-A'
SPUD PILE
(2) REQD
SCALE: 1/4"=1'-0"

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
-	PRELIMINARY ISSUE FOR CLIENT REVIEW	RJP 12/11/20 JRP
0	ISSUE FOR BIDDING	RJP 3/08/21 JRP
1	ISSUE FOR BIDDING INCORPORATE CLIENT COMMENTS: 1. REV NOTE 6 TO INCL ASTM A-36 AND ADD MATERIAL CALL OUT FOR PILES ELEV '1-A' 2. CALL OUT GUIDE ROLLERS DETAILS '2-C' & '3-B' 3. ADD NOTES TO CLOSE UP PILE AFTER SHEAVE INSTALLED (DETAIL '2-C') AND AT NOSE W/ 3/4" PL (DETAIL '2-D')	JRP 3/15/21 JRP

REFERENCES

No.	TITLE	DWG No.
1	GENERAL ARRANGEMENT	2018-060-01-01
2	STRUCTURAL SCANTLING PLAN	2018-060-01-02
3	-	-
4	-	-
5	-	-

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DRWN: RJP	DATE: DEC. 11, 2020	SCALE: AS NOTED	
CHKD: JRP	APPD: SAS	ACADFILE: D600103-1-STAMPED	
PROJECT FILE: 2018-060-01		PLOTSCALE: 1:1 ON ANSI D	
ABS APPROVAL: -			
-			

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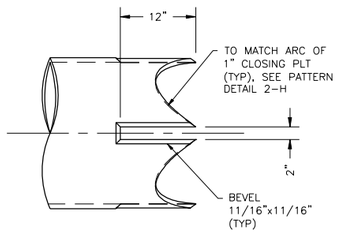
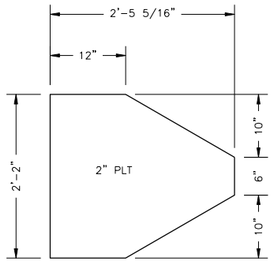
CRANE BARGE

SPUD PILE

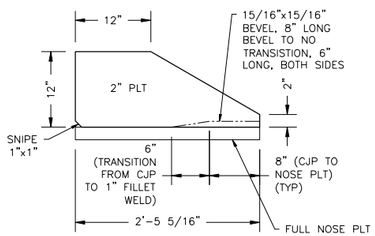
OWNER APPVL: -	HEC DWG No.: 2018-060-01-03	
DATE: -		
FILE: -	SHEET 1 OF 3	REV 1



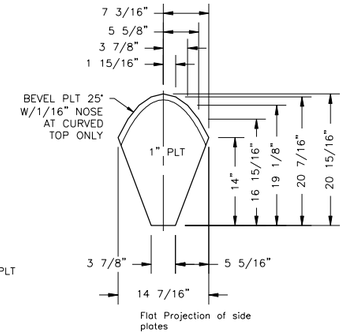
DETAIL '2-E'
CUT OUTS FOR SPUD NOSE
SCALE: 1"=1'-0"



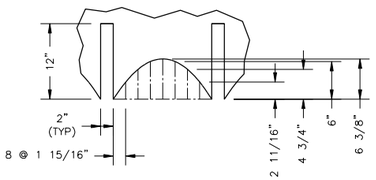
DETAIL '2-F'
FULL NOSE PLATE
SCALE: 1"=1'-0"



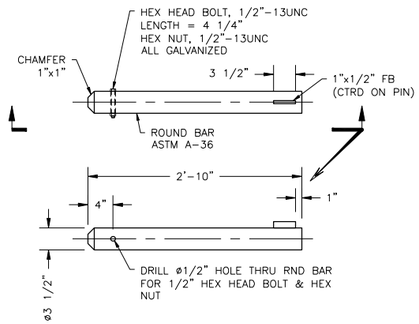
DETAIL '2-G'
HALF NOSE PLATE
SCALE: 1"=1'-0"



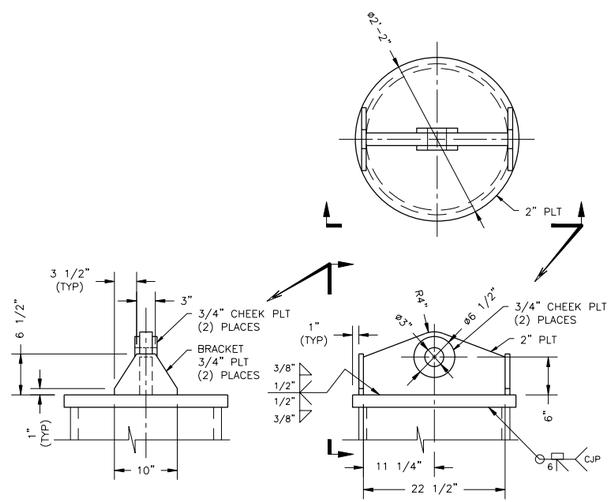
DETAIL 2-H
CLOSING PLATE
FLAT PROJECTION
(4) REQD
SCALE: 1"=1'-0"



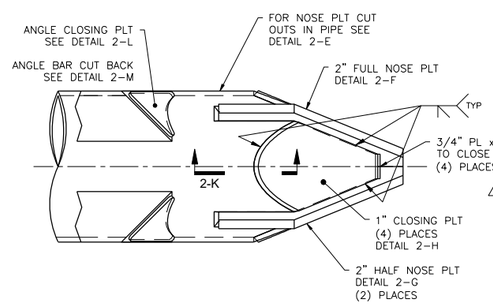
DETAIL 2-I
FLATTENED - PIPE CUT PATTERN
TO MATCH CLOSING PLATES
SCALE: 1"=1'-0"



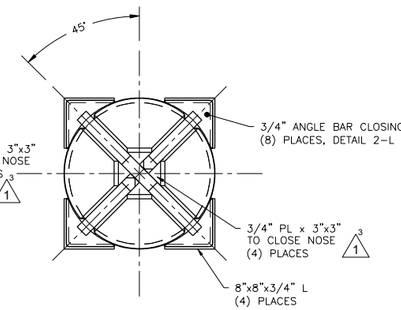
DETAIL 2-J
SECURING PIN
(2) REQD
SCALE: 1"=1'-0"

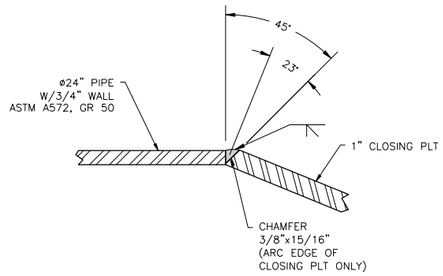


DETAIL '2-B'
SPUD PILE LIFTING PADEYE
SCALE: 1"=1'-0"

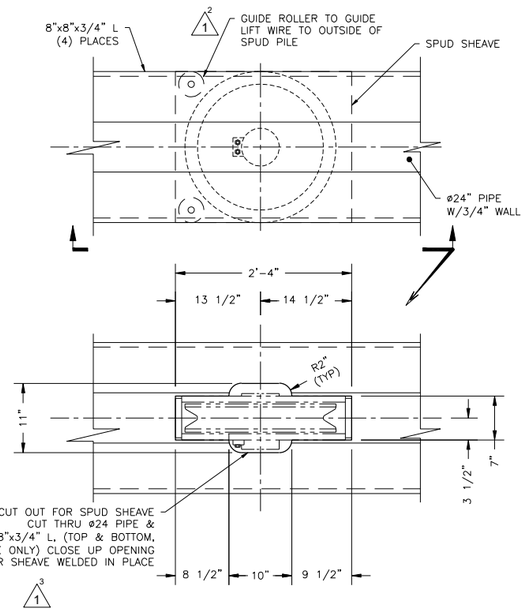


DETAIL '2-D'
SPUD PILE NOSE
SCALE: 1"=1'=0"

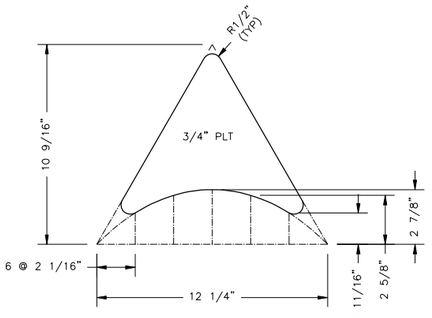




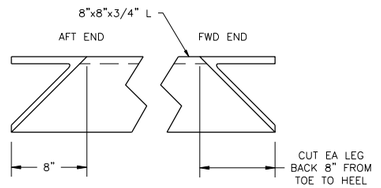
DETAIL '2-K'
WELD DETAIL CLOSING PLT TO PIPE
SCALE: 3"=1'-0"



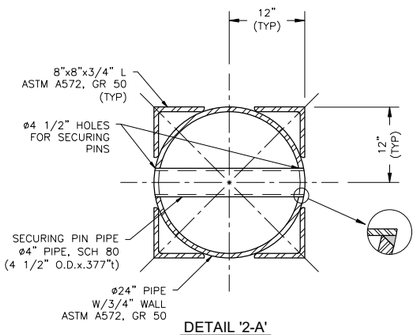
DETAIL '2-C'
SPUD PILE CABLE TURNING SHEAVE
SCALE: 1"=1'=0"



DETAIL 2-L
ANGLE CLOSING PLATE
(8) REQD
SCALE: 3"=1'-0"



DETAIL '2-M'
ANGLE BAR END CUTS
SCALE: 1 1/2"=1'-0"



DETAIL '2-A'
SPUD PILE CROSS-SECTION AT SECURING PIN PIPE
SCALE: 1"=1'=0"

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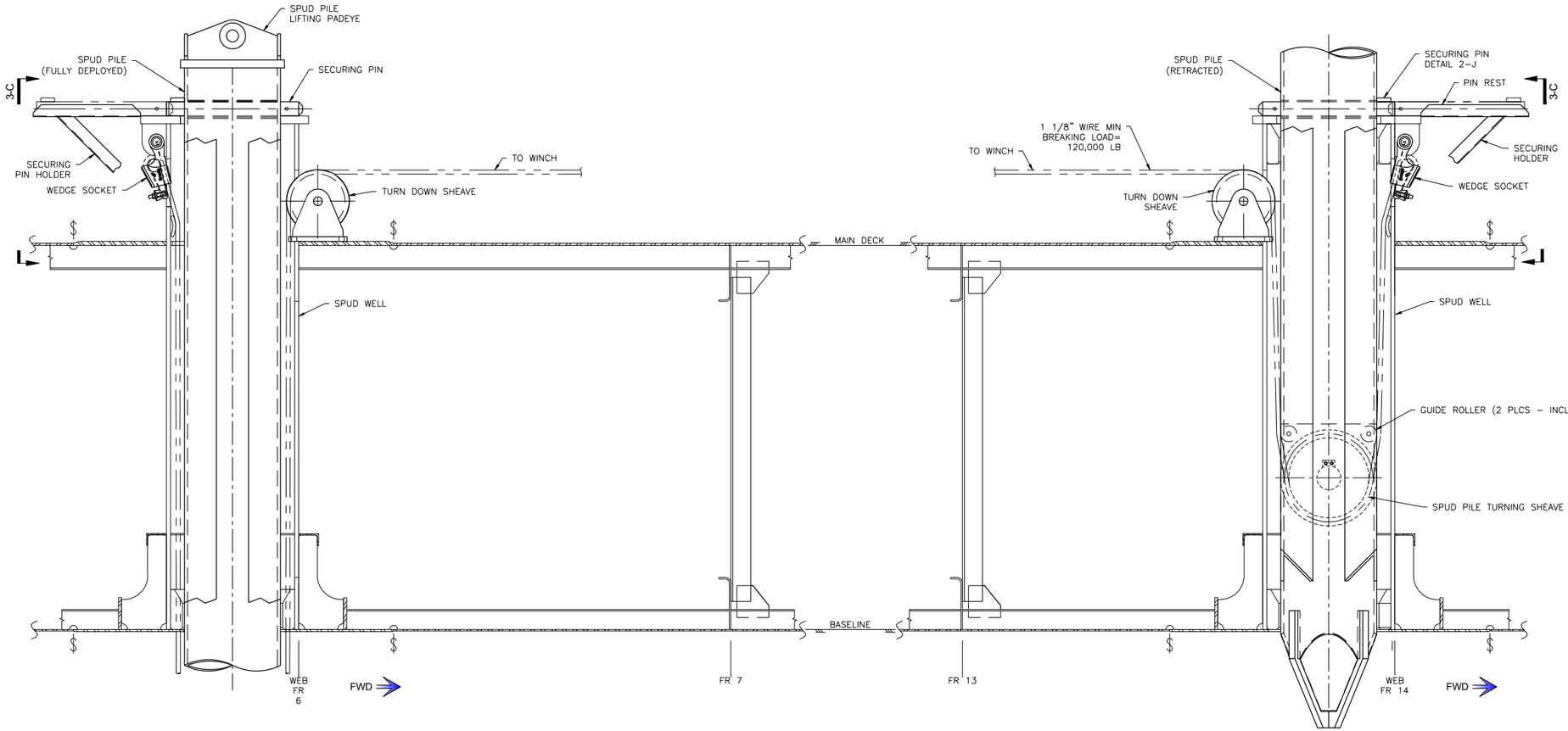
CRANE BARGE

SPUD PILE

HEC DWG No.: 2018-060-01-03
SCALE: AS NOTED
SHEET 2 OF 3
REV 1

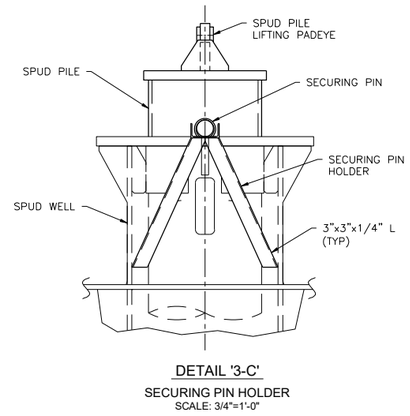


DETAIL 3-A

RIGGING ARRANGEMENT
SPUD PILE - DEPLOYED
SPUD WELL No.1
22'-11" OFF CL
PORT SIDE, LKG OUTBD
SCALE: 3/4"=1'-0"

DETAIL 3-B

RIGGING ARRANGEMENT
SPUD PILE - RETRACTED
SPUD WELL No.2
22'-11" OFF CL
PORT SIDE, LKG OUTBD
SCALE: 3/4"=1'-0"



DETAIL '3-C'

SECURING PIN HOLDER
SCALE: 3/4"=1'-0"

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CRANE BARGE

SPUD PILE

HEC DWG No.: 2018-060-01-03
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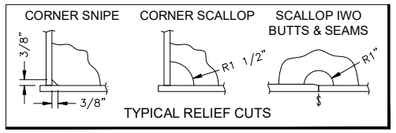
SHEET 3 OF 3
REV 1

EXHIBIT A-4 – Outfitting

GENERAL NOTES

1. THIS DRAWING PRESENTS DETAILS FOR THE OUTFITTING OF A CRANE BARGE FOR PERFORMING ROUTINE REPAIRS AND OTHER LIFTING WORKS ALONG THE SAN FRANCISCO WATERFRONT.
2. THE BARGE IS DESIGNED TO PROVIDE STABILITY AND STRENGTH TO LIFT AND HANDLE PILES UP TO 135 FT IN LENGTH AND TO 76,000 LB AT 60 FT RADIUS FROM CRANE CL.
3. THE BARGE IS DESIGNED TO MEET THE REQUIREMENTS OF THE ABS RULES FOR BUILDING AND CLASSING STEEL BARGES, 2020, ALTHOUGH THE DESIGN WILL NOT ACTUALLY BE REVIEWED NOR APPROVED BY CLASS.
4. ALL MATERIAL, WELDING, FABRICATION AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH APPLICABLE ABS RULES AND TO THE SATISFACTION OF THE OWNER.
5. THERE SHALL BE NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE.
6. ALL NEW STEEL IS TO BE ABS GRADE A OR ASTM A-36 UNLESS NOTED OTHERWISE.
7. FOUNDATIONS FOR SPECIFIC EQUIPMENT AND FITTINGS ARE TO BE ADJUSTED AS NECESSARY TO ENSURE THEY PROVIDE THE PROPER SUPPORT.
8. EXCEPT WHERE NOTED, ALL WELDS ARE TO BE DOUBLE CONTINUOUS FILLETS WRAPPED AT THE ENDS. UNLESS OTHERWISE INDICATED, WELDS SHALL BE SIZED PER THE TABLE SHOWN BELOW. SIZES PERTAIN TO THE LEG LENGTH.
9. PROVIDE RELIEF CUTS AS SHOWN IN THE TABLE BELOW. IF NONE IS SHOWN ON THE DETAIL, IT IS ASSUMED TO HAVE THE 3/8"x3/8" CORNER SNIPE AND IS TO BE FILLED WITH WELD. SCALLOPS SHALL HAVE RADII AS SHOWN IN THE TABLE BELOW UNLESS NOTED OTHERWISE.

FILLET WELD SIZING TABLE							
THICKNESS OF THINNER PLATE	≤1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	≥3/4"
FILLET WELD LEG SIZE	3/16"	7/32"	7/32"	1/4"	5/16"	5/16"	3/8"



ABBREVIATIONS

ABL — ABOVE BASELINE	EXISTG — EXISTING
ABT — ABOUT	FR — FRAME
BHD — BULKHEAD	FWD — FORWARD
BKT — BRACKET	GDR — GIRDER
BTM — BOTTOM	LONGL — LONGITUDINAL
CHK — CHOCK	NS — NEAR SIDE
CL — CENTERLINE	N&F — NEAR & FAR
CLR — CLEAR	OPNG — OPENING
CMG — COAMING	OUTBD — OUTBOARD
CTR — CENTER	PLT — PLATE
DBL — DOUBLE	PLTG — PLATING
DET — DETAIL	REF — REFERENCE
D.O. — DITTO (SAME AS)	STD — STANDARD
	T&B — TOP & BOTTOM
	TYP — TYPICAL
	WT — WATERTIGHT

DRAWING INDEX

PRINCIPAL PARTICULARS

LENGTH ____ 150'-0"
BEAM ____ 55'-0"
DEPTH ____ 8'-0"
DRAFT ____ 2'-6"
DISPLACEMENT ____ 776 SHORT TONS (1) (2)
LIFT CAPACITY ____ 180,000LB @ 25'-0" RADIUS (ANY DIRECTION)
LIFT CAPACITY ____ 112,000LB @ 60'-0" RADIUS (ANY DIRECTION)
LIFT CAPACITY ____ 26,500LB @ 150'-0" RADIUS (ANY DIRECTION)
DESIGN WATER DEPTH 60 FT, MOORED: 40FT WITH SPUDS DOWN

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
0	ISSUE FOR BIDDING	JRP/03/08/21/JRP
1	REISSUE FOR BIDDING 1. ADDED FORE AND AFT SHELL LADDER P&S, SHEET 13 2. ADDED SECOND DECK HATCHES FOR MOST COMPARTMENTS	JRP/04/06/21/JRP
2	REISSUE FOR BIDDING 1. CORRECTED DISPLACEMENT	JRP/06/13/22/JRP
3	REVISED PER FINAL SPECIFICATION	AMH 2/6/25 JRP

REFERENCES

No.	TITLE	DWG No.
1	GENERAL ARRANGEMENT	2018-060-01-01
2	STRUCTURAL SCANTLING PLAN	2018-060-01-02
3	SPUD PILES	2018-060-01-03
4	MECHANICAL ARRANGEMENT	2018-060-01-05
5	-	-

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DRWN: RJP	DATE: FEB 6, 2025	SCALE:	AS NOTED
CHKD: JRP	APPD: SAS	ACADFILE:	180600104-3
PROJECT FILE:	2018-060-01	PLOTSCALE:	1:1 ON ANSI D
ABS APPROVAL: -			
-			

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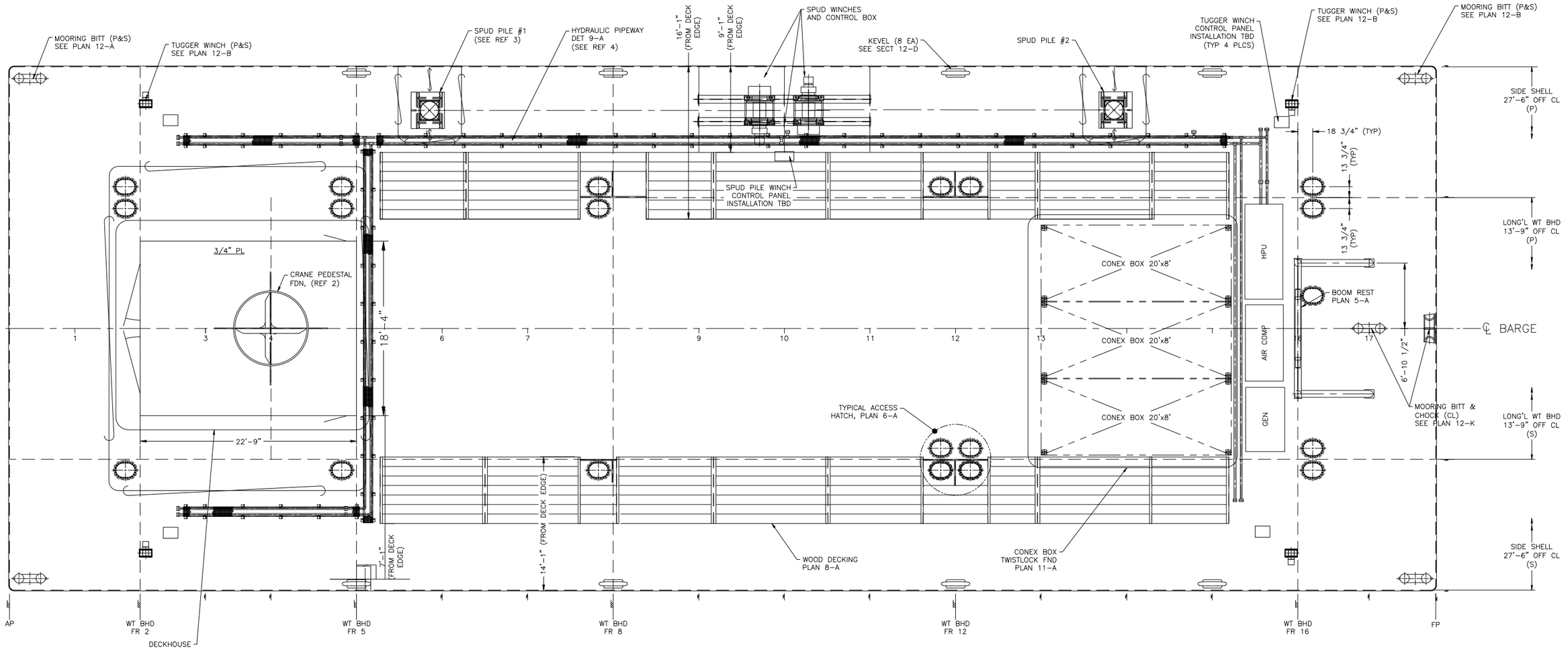
CRANE BARGE

OUTFITTING

OWNER APPVL: -	HEC DWG No.: 2018-060-01-04		
DATE: -			
FILE: -	SHEET 1 OF 13	REV 3	



KEY PLAN 2-A

OUTFITTING ARRANGEMENT

SCALE: 3/16"=1'-0"

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CRANE BARGE

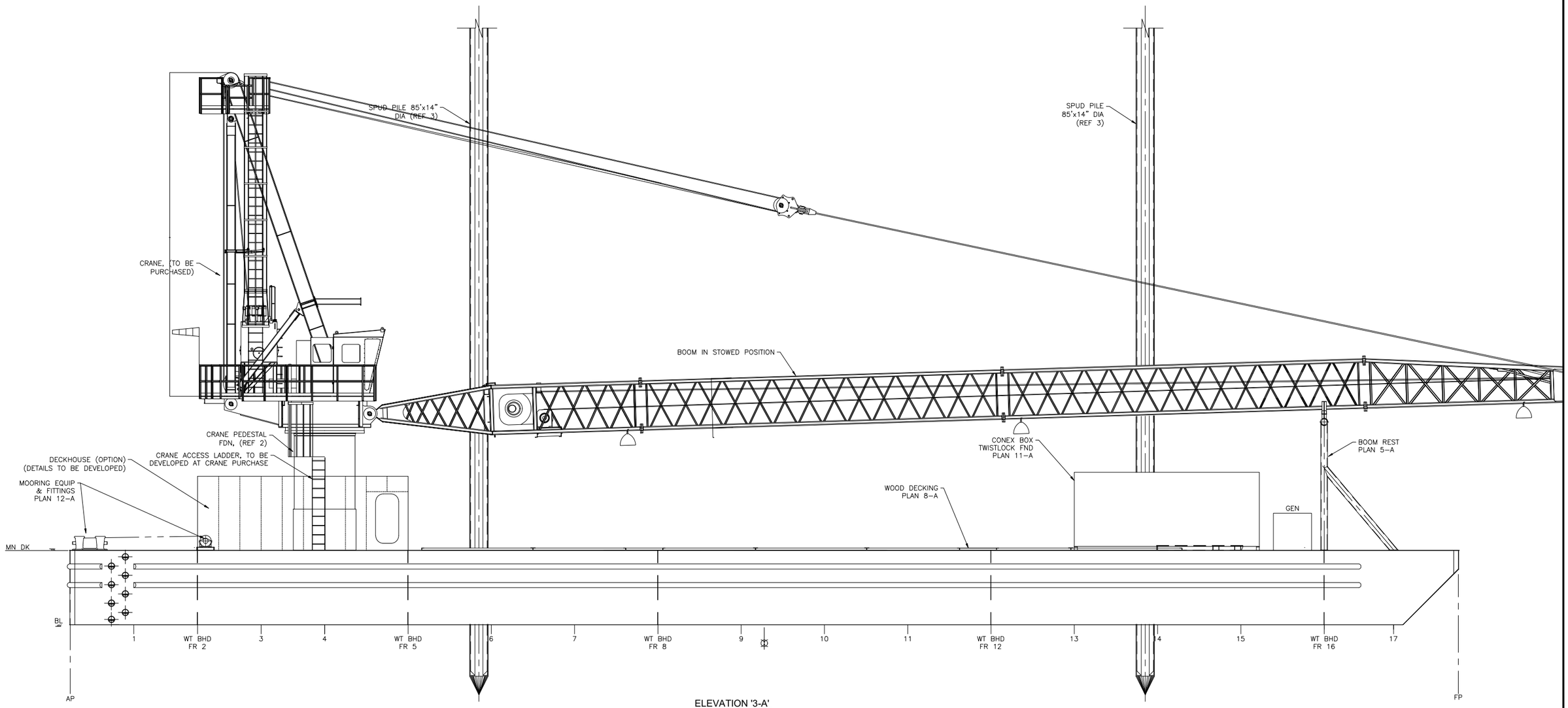
OUTFITTING

HEC DWG No.: 2018-060-01-04

SCALE: AS NOTED

SHEET 2 OF 13

REV 3



ELEVATION '3-A'

STBD SIDE, LKG INBD

SCALE: 3/16"=1'-0"

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CRANE BARGE

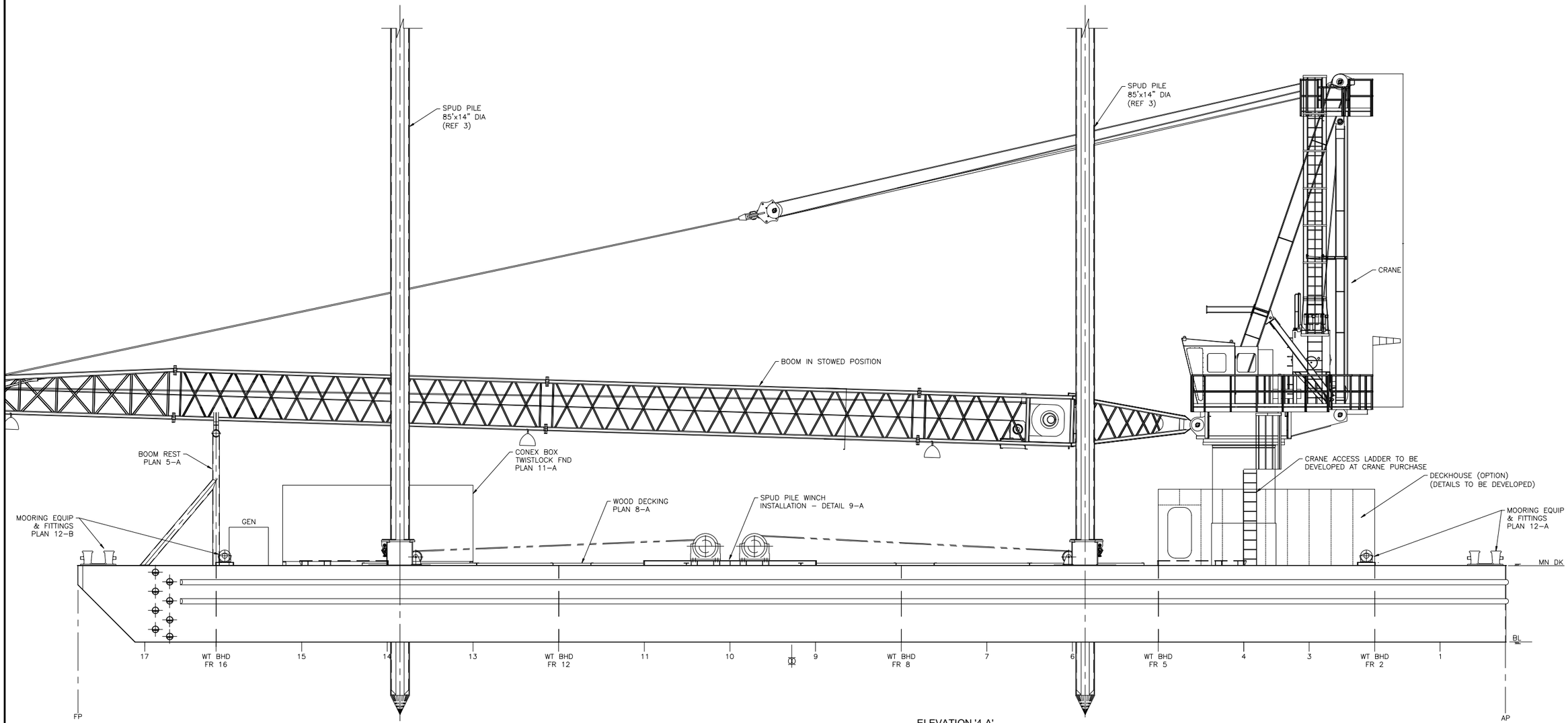
OUTFITTING

HEC DWG No.: 2018-060-01-04

SCALE: AS NOTED

SHEET 3 OF 13

REV 3



ELEVATION '4-A'

PORT SIDE, LKG INBD

SCALE: 3/16"=1'-0"

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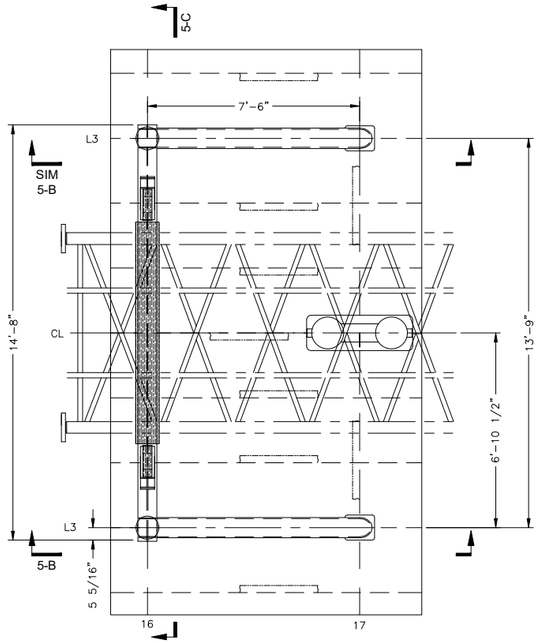
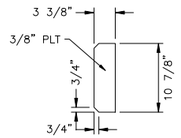
OUTFITTING

HEC DWG No.: 2018-060-01-04	SCALE: AS NOTED	REV 3
	SHEET 4 OF 13	



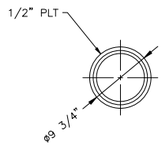
PLAN '5-A'

BOOM REST
BETWEEN FRAMES 16 & 17, MAIN DECK 8'-0" ABL
AT CL OF BARGE
SCALE: 3/8"=1'-0"



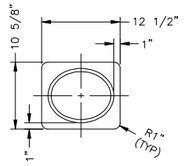
DETAIL '5-F'

CHOCK - 16 REQ'D
SCALE: 1"=1'-0"



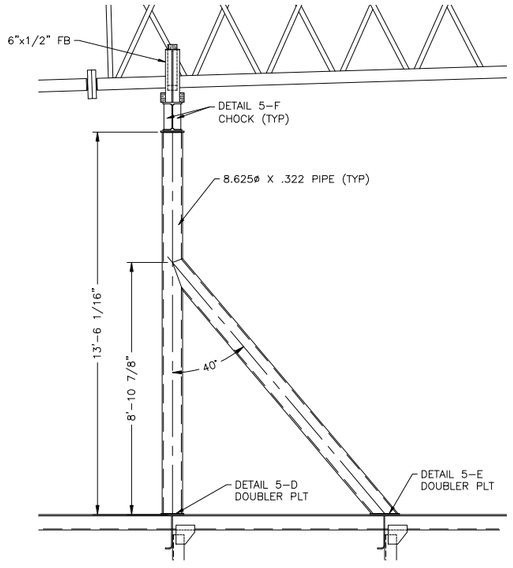
DETAIL '5-D'

DOUBLER PLATE/END CAP
SCALE: 1"=1'-0"



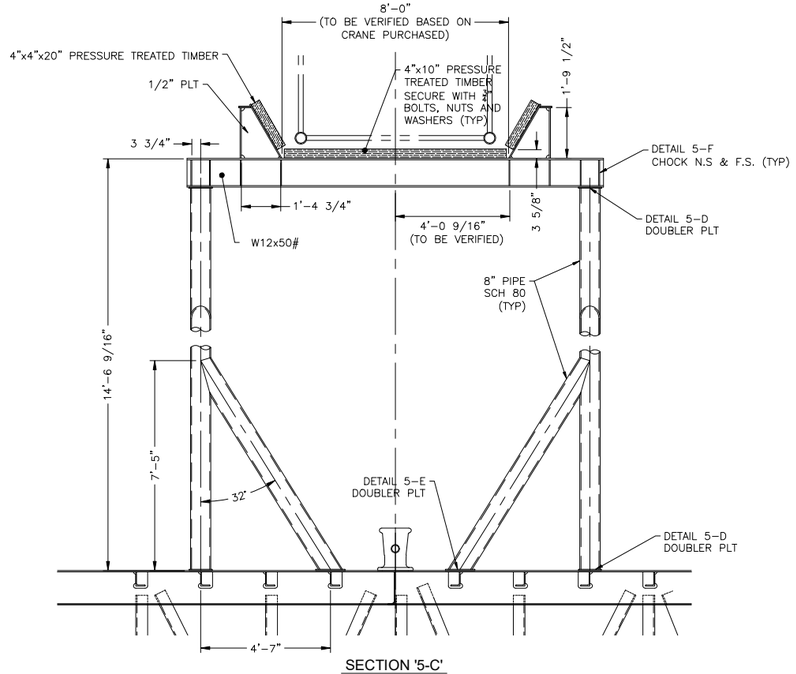
DETAIL '5-E'

DOUBLER PLATE
SCALE: 1"=1'-0"



ELEVATION '5-B'

BOOM REST
6'-10 5/8" OFF CL, STBD SIDE LKG INBD
PORT SIDE SIM TO OPP HAND
SCALE: 3/8"=1'-0"



SECTION '5-C'

BOOM REST
AT FR 16, 8'-0" ABL
ABOUT CL, LKG AFT
SCALE: 3/8"-1'-0"

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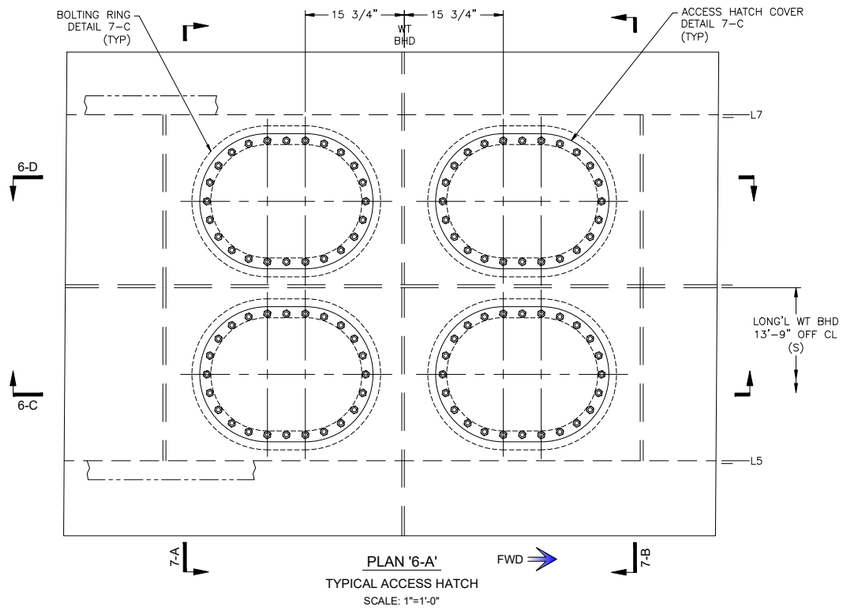
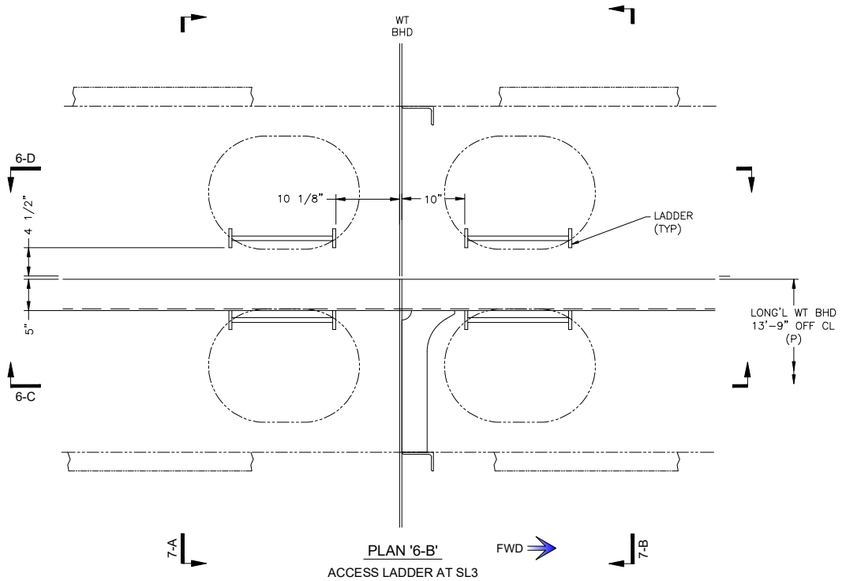
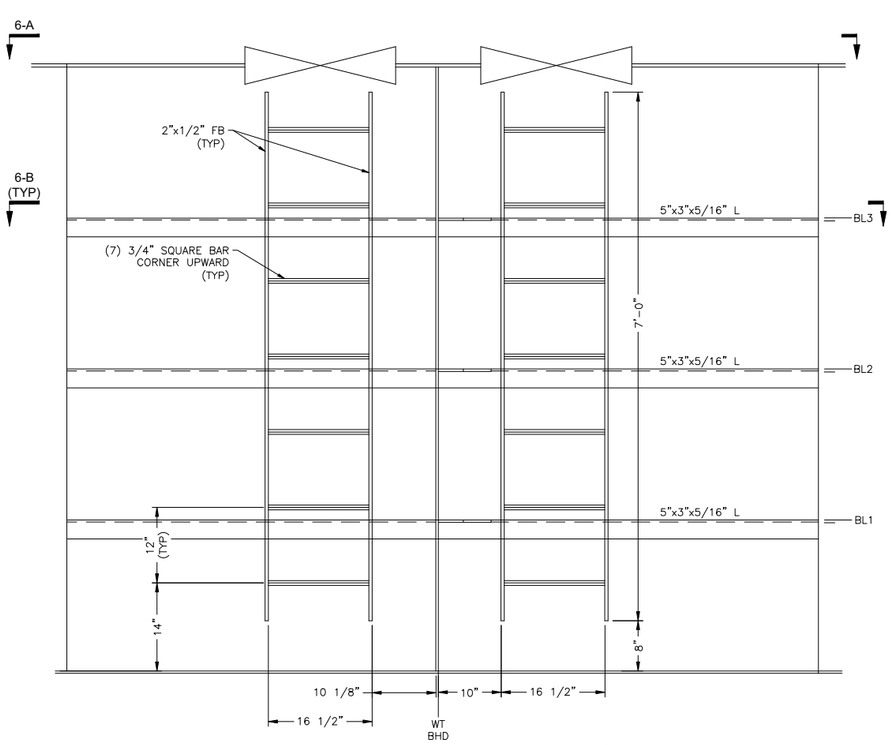


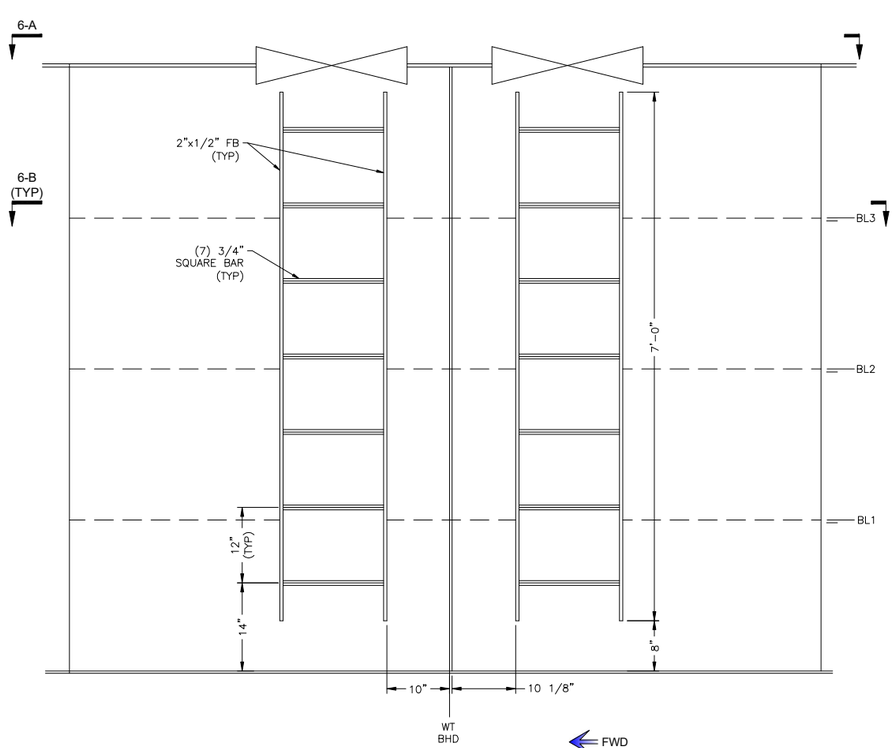
PLAN '6-A'
TYPICAL ACCESS HATCH
SCALE: 1"=1'-0"



PLAN '6-B'
ACCESS LADDER AT SL3
SCALE: 1"=1'-0"



ELEVATION '6-C'
TYPICAL ACCESS LADDER
INBD SIDE OF LONG'L BHD
LKG OUTBD
SCALE: 1"=1'-0"



ELEVATION '6-D'
TYPICAL ACCESS LADDER
OUTBD OF LONG'L BHD
LKG INBOARD
SCALE: 1"=1'-0"

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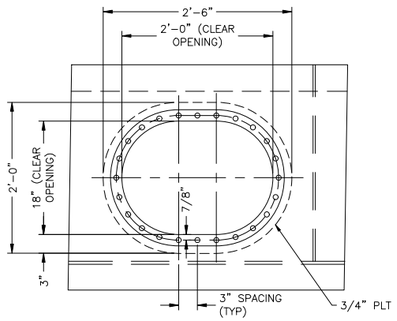
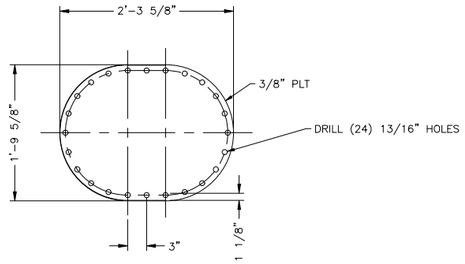
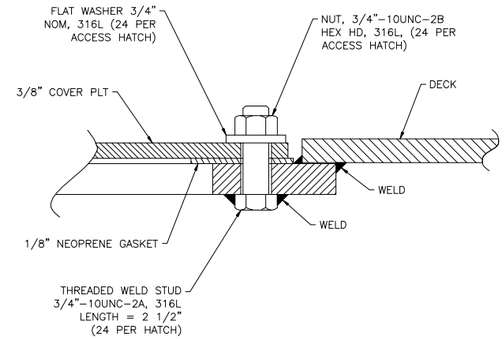


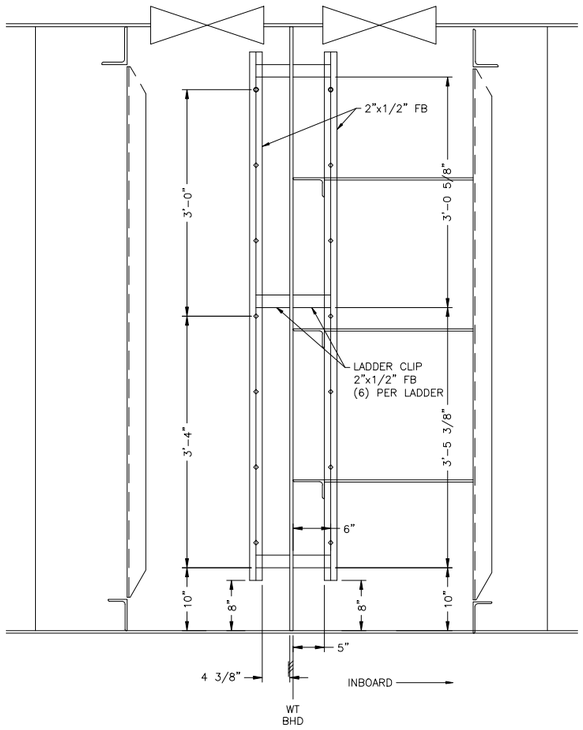
DETAIL '7-C'
TYPICAL DECK RING
SCALE: 1"=1'-0"



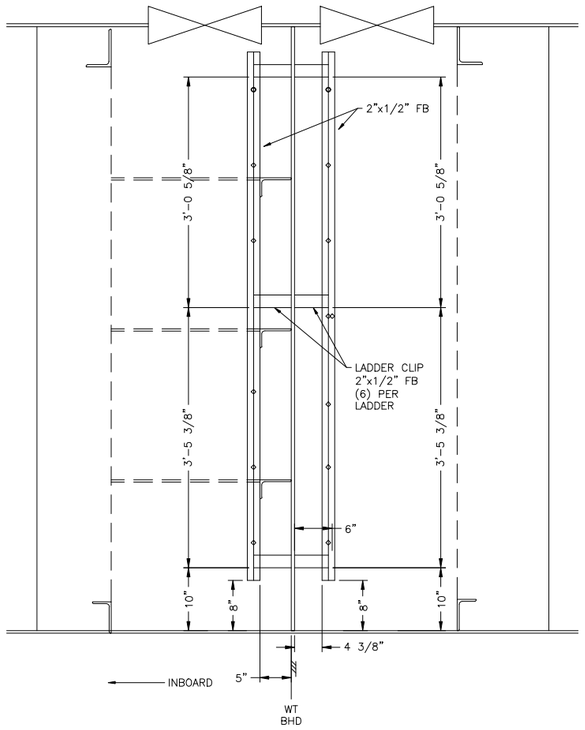
DETAIL '7-D'
TYPICAL ACCESS COVER PLATE
SCALE: 1"=1'-0"



DETAIL '7-E'
ACCESS HATCH ASSEMBLY
SCALE: 1"=1'-0"



SECTION '7-A'
TYPICAL ACCESS HATCH & LADDER
FWD SIDE OF WT BHD
LKG AFT
SCALE: 1"=1'-0"



SECTION '7-B'
TYPICAL ACCESS HATCH & LADDER
AFT SIDE OF WT BHD
LKG FWD
SCALE: 1"=1'-0"

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HEC DWG No.: 2018-060-01-04
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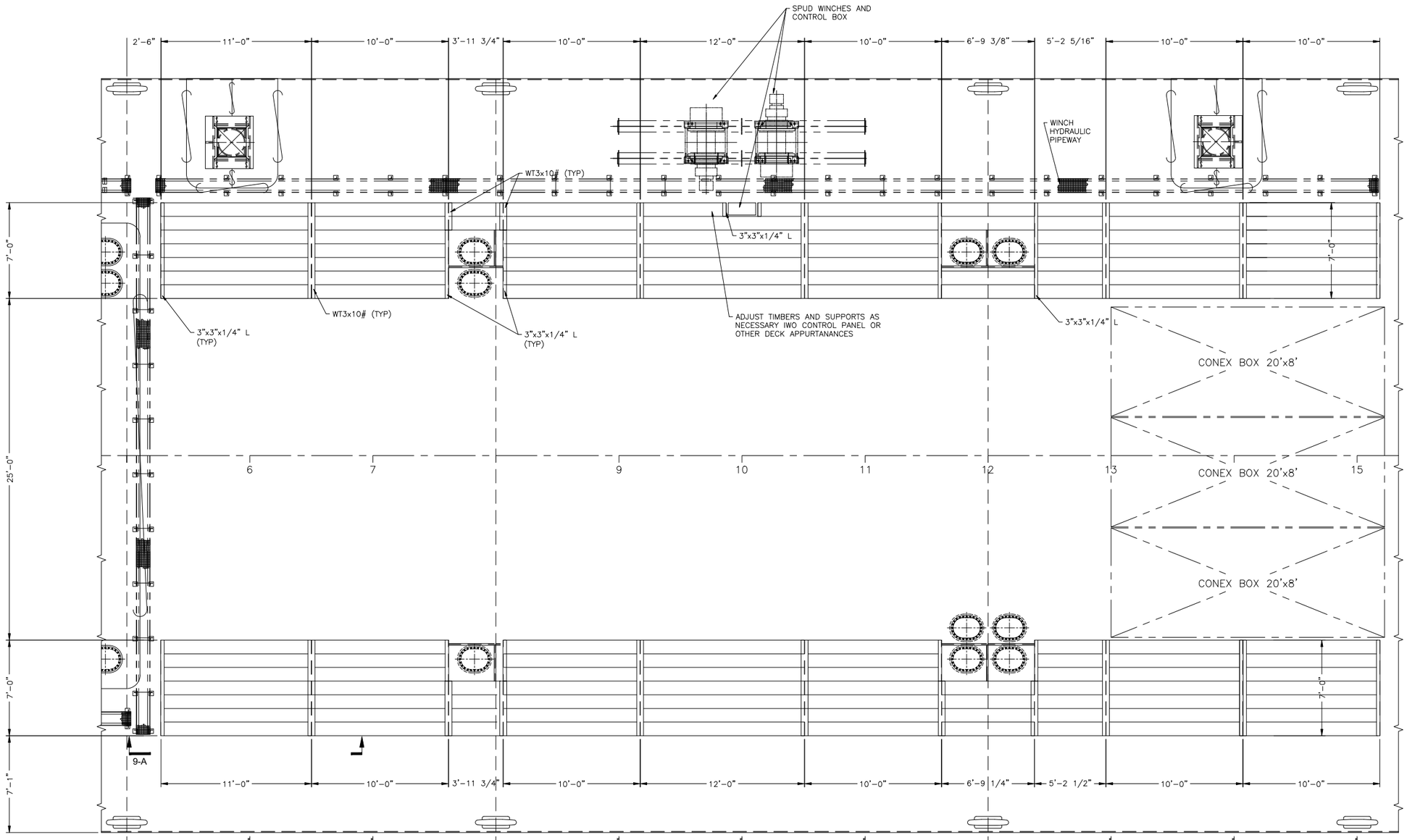
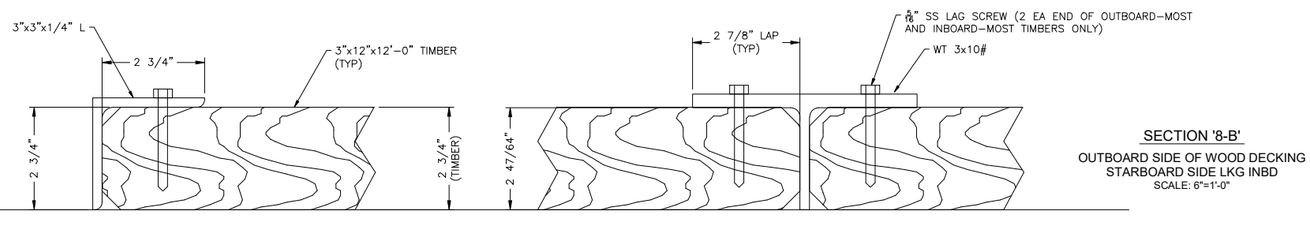
SHEET 7 OF 13
REV 3



PLAN '8-A'

TIMBER DECKING ARRANGEMENT
MAIN DECK
FR 5 TO FR 15
SCALE 1/4" = 1'-0"



SECTION '8-B'

OUTBOARD SIDE OF WOOD DECKING
STARBOARD SIDE LKG INBD
SCALE: 6"=1'-0"

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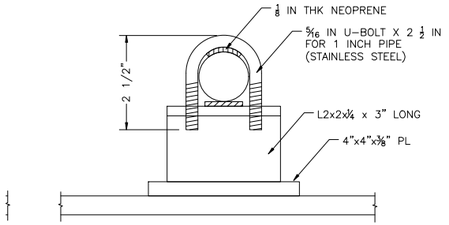
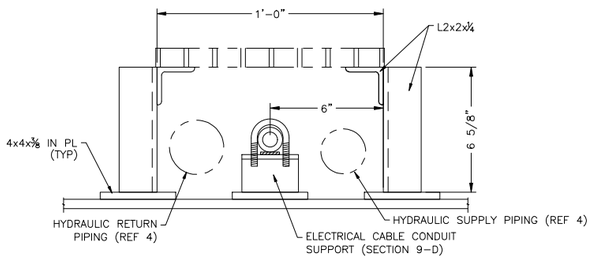
HEC DWG No.:	SCALE: AS NOTED	REV
2018-060-01-04	SHEET 8 OF 13	3



SECTION '9-D'

ELECTRIC CABLE CONDUIT SUPPORT

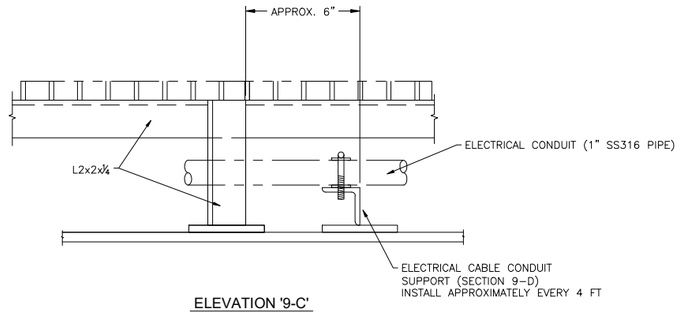
SCALE 3" = 1'-0"



SECTION '9-B'

HYDRAULIC PIPING PROTECTION

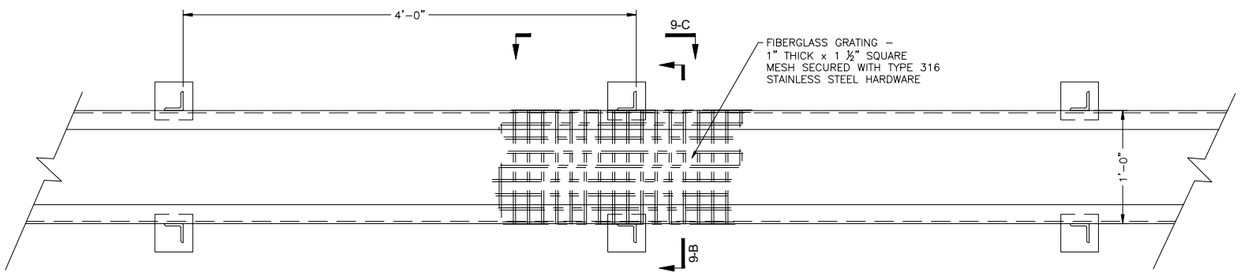
SCALE 3" = 1'-0"



ELEVATION '9-C'

HYDRAULIC PIPING PROTECTION

SCALE 3" = 1'-0"



DETAIL '9-A'

HYDRAULIC PIPING PROTECTION

SCALE 1-1/2" = 1'-0"

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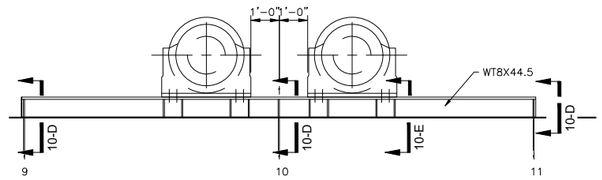
OUTFITTING

HEC DWG No.: 2018-060-01-04	SCALE: AS NOTED	SHEET 9 OF 13	REV 3

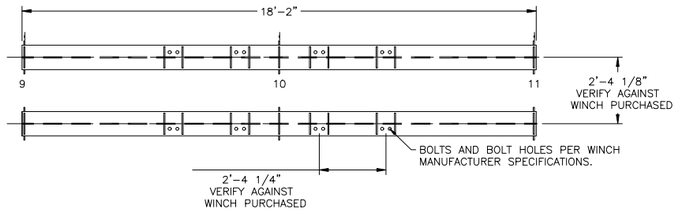


ELEVATION 10-C

SPUD WINCH FOUNDATION

SCALE: 3/8"=1'-0"

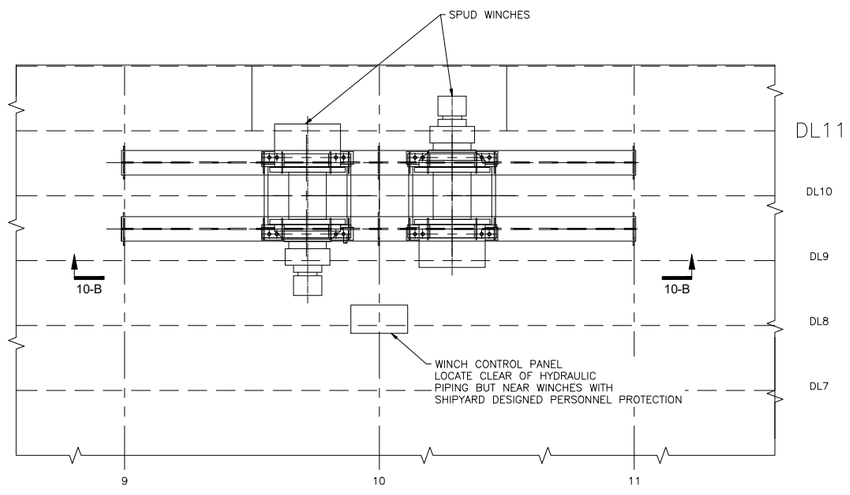
FWD



DETAIL 10-B

SPUD WINCH SUPPORT BEAMS

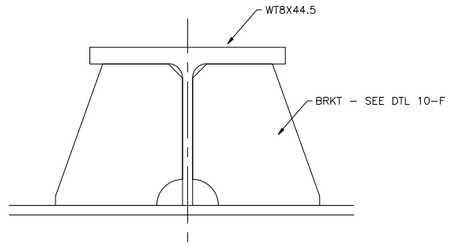
SCALE: 3/8"=1'-0"



DETAIL 10-A FWD

SPUD PILE WINCH FOUNDATION

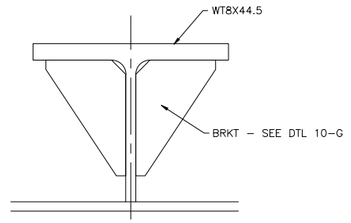
SCALE: 3/8"=1'-0"



DETAIL 10-D

BRACKETS AT WEB FRAMES

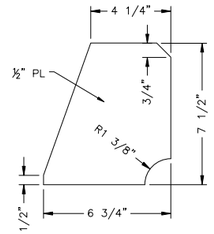
SCALE: 1-1/2" = 1'-0"



DETAIL 10-E

BRACKETS AT NEAR BOLTS

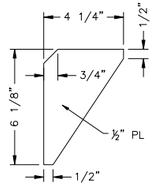
SCALE: 1-1/2" = 1'-0"



DETAIL 10-F

BRACKETS AT WEB FRAMES

SCALE: 1-1/2" = 1'-0"



DETAIL 10-G

BRACKETS AT NEAR BOLTS

SCALE: 1-1/2" = 1'-0"

NOTE: ADJUST DIMENSIONS AS REQUIRED FOR ACTUAL EQUIPMENT PURCHASED.

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HEC DWG No.: 2018-060-01-04

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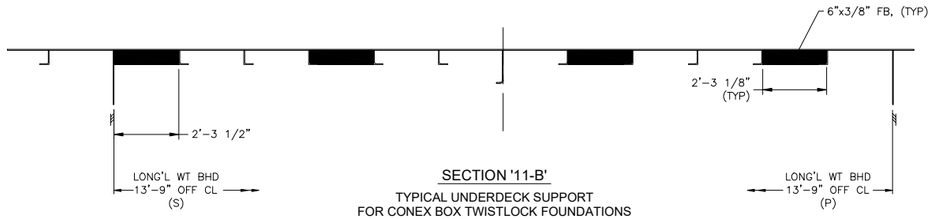
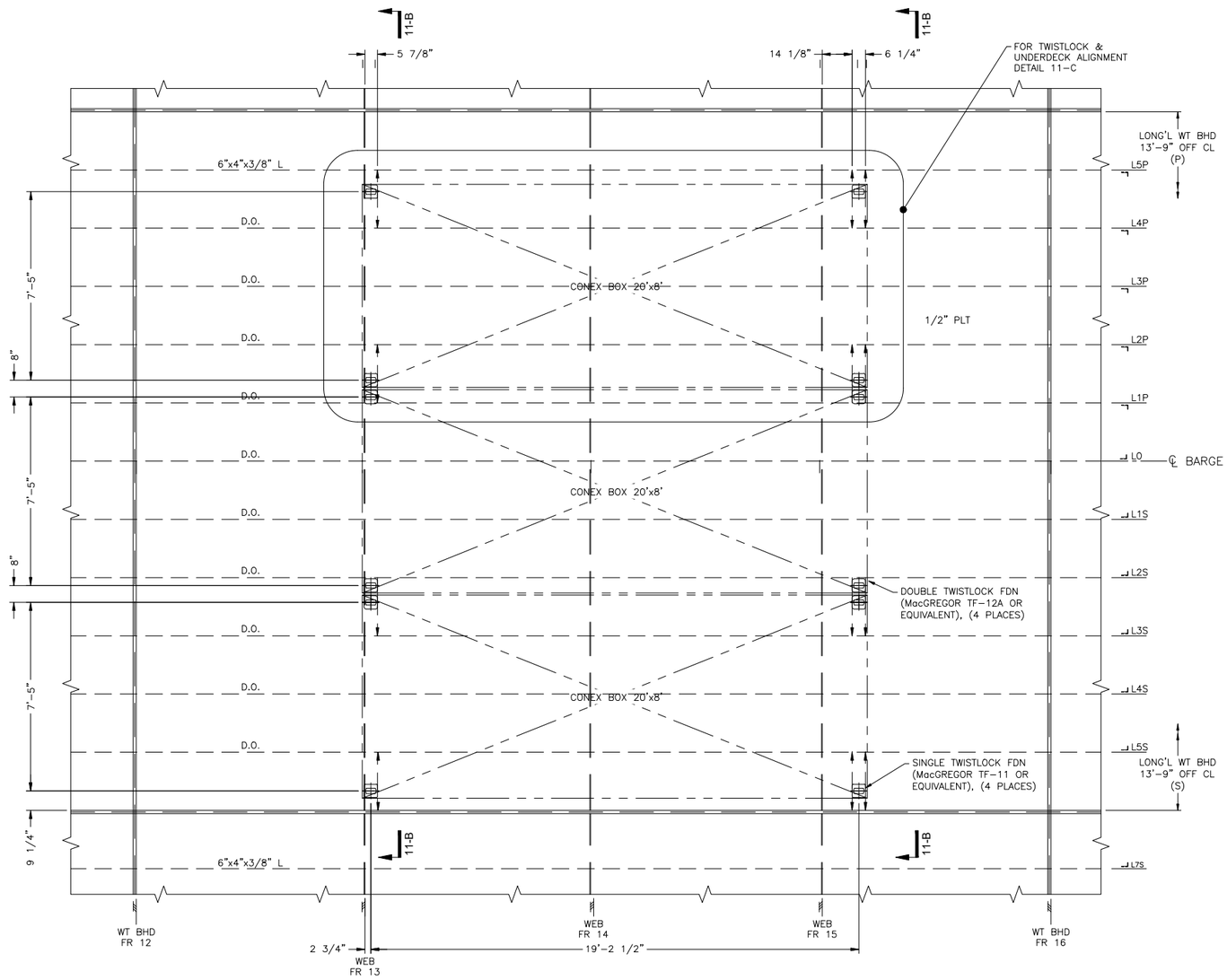
SHEET 10 OF 13

REV 3



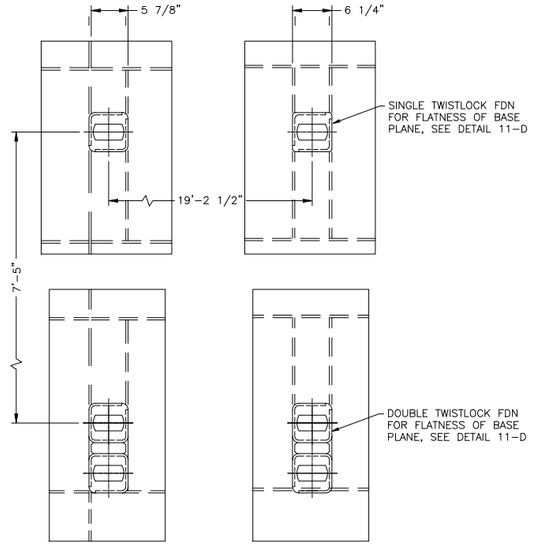
SECTION '11-B'

TYPICAL UNDERDECK SUPPORT
FOR CONEX BOX TWISTLOCK FOUNDATIONS
ABT CL, LKG AFT
SCALE: 3/8"=1'-0"



PLAN '11-A'

TWISTLOCK FOUNDATIONS FOR 3 CONEX BOX
SCALE: 3/8"=1'-0"

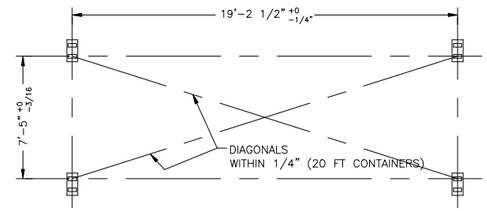


DETAIL '11-C'

TWISTLOCK & UNDERDECK STRUCTURE ALIGNMENT
SCALE : 1"=1'-0"5

FLATNESS OF BASE PLANE OF ANY STACK OF CONTAINERS:

NO POINT SHALL DEVIATE FROM THE PLANE OF THE OTHER THREE BY MORE THAN THAN ±1/8". THE TOLERANCES FOR THE FLATNESS OF THE PLANE OF ANY STACK OF CONTAINERS TO A COMMON PLANE ESTABLISHED BY (2) ADJACENT CONTAINERS SHALL BE ±1/8" OVER 16'-0". SHIMS REQUIRED TO ESTABLISH FLAT PLANE SHALL HAVE A MINIMUM THICKNESS OF 1/4", WITH A CONTINUOUS FILLET WELD OF 1/4".



DETAIL '11-D'

DECK SOCKET TOLERANCES
NOT TO SCALE

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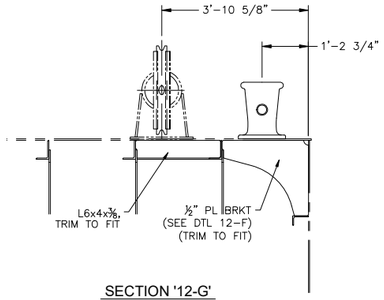
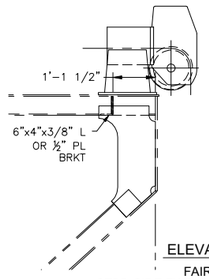
OUTFITTING

HEC DWG No.: 2018-060-01-04
SCALE: AS NOTED
SHEET 11 OF 13
REV 3



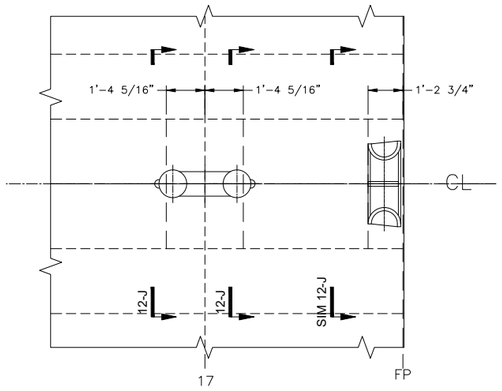
SECTION '12-G'

FWD STBD BOLLARD AND FAIRLEAD FDN
STBD SIDE, PORT SIMILAR, OPP HAND
LKG FWD
SCALE: 1/2"=1'-0"



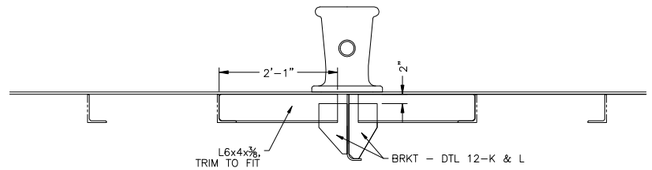
ELEVATION '12-H'

FAIRLEAD FDN
STBD SIDE FWD, PORT SIMILAR, OPP HAND
LKG TO PORT
SCALE: 1/2"=1'-0"



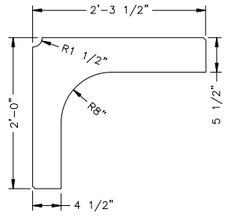
PLAN '12-I'

CENTERLINE BOLLARD AND CHOCK FDN
SCALE : 3/8" = 1'-0"



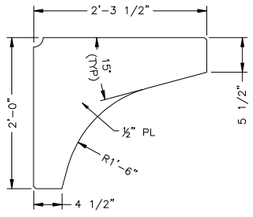
PLAN '12-J'

CL BOLLARD AND CHOCK FDN
SCALE : 1/2" = 1'-0"



DETAIL '12-E'

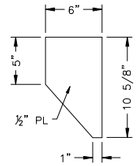
KEVEL BRACKET DETAIL
SCALE: 1"=1'-0"



DETAIL '12-F'

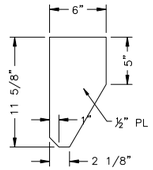
BOLLARD BRACKET DETAIL
SCALE: 1"=1'-0"

NOTE: ADJUST FOUNDATIONS AS REQUIRED FOR ACTUAL FITTINGS AND EQUIPMENT PURCHASED.



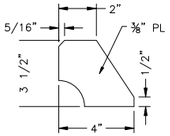
DETAIL '12-K'

CL MOORNG BRACKET DETAIL
SCALE: 1-1/2" = 1'-0"



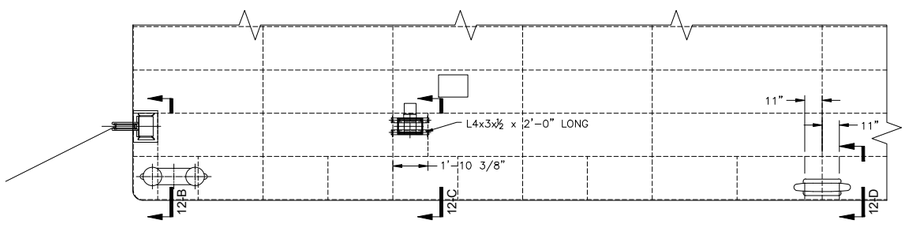
DETAIL '12-L'

CL MOORNG BRACKET DETAIL
SCALE: 1-1/2" = 1'-0"



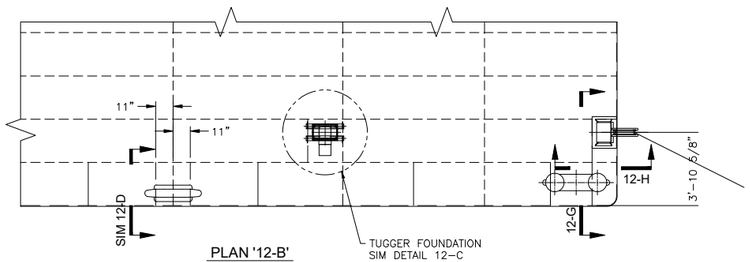
DETAIL '12-M'

TUGGER WINCH BRKT DETAIL
SCALE: 3" = 1'-0"



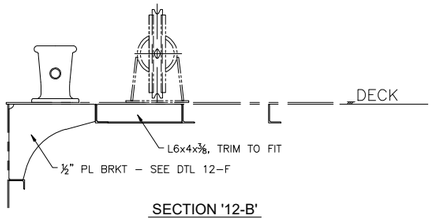
PLAN '12-A'

AFT DECK MOORING FDNS
SCALE: 1/4"=1'-0"



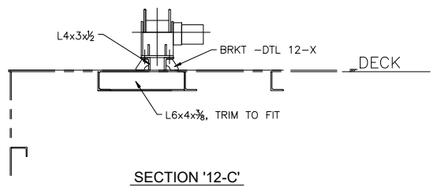
PLAN '12-B'

FORE DECK MOORING FDNS
SCALE: 1/4"=1'-0"



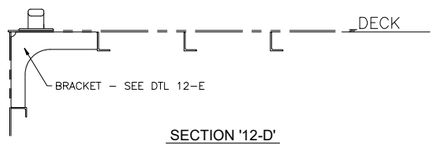
SECTION '12-B'

TYPICAL BOLLARD FOUNDATION
STBD SIDE, PORT SIMILAR, OPP HAND
LKG AFT
SCALE: 1/2"=1'-0"



SECTION '12-C'

TYPICAL TUGGER WINCH FOUNDATION
STBD SIDE, PORT SIMILAR, OPP HAND
LKG AFT
SCALE: 1/2"=1'-0"



SECTION '12-D'

TYPICAL KEVEL FOUNDATION
STBD SIDE, PORT SIMILAR, OPP HAND
LKG AFT
SCALE: 1/2"=1'-0"

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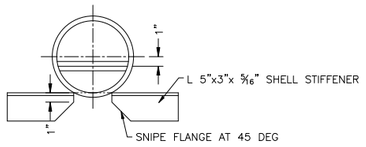
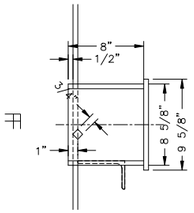
SHEET 12 OF 13
REV 3



DETAIL '13-C'

SHELL POCKET RUNG

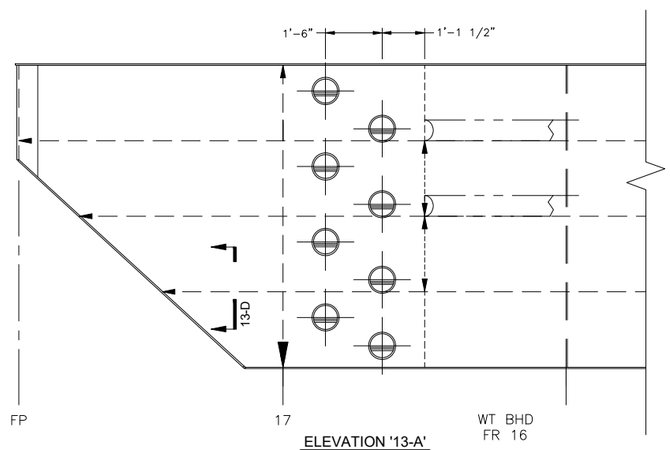
SCALE: 1-1/2"=1'-0"



SECTION '13-D'

SHELL POCKET RUNG

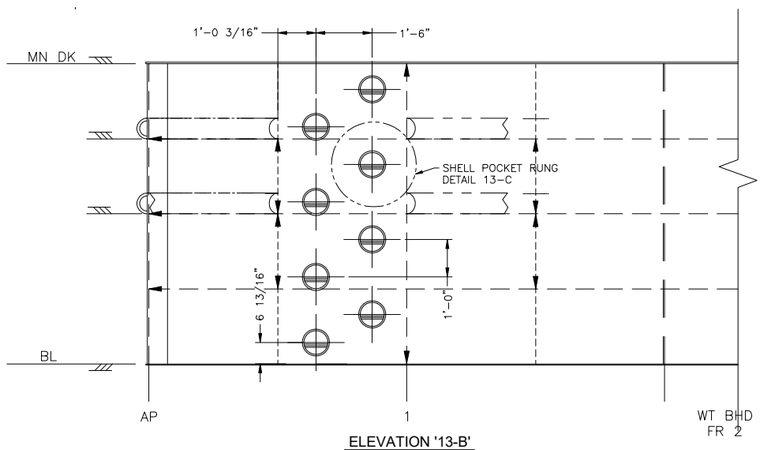
SCALE: 1-1/2"=1'-0"



ELEVATION '13-A'

PORT FWD SHELL LADDER

SCALE: 1/2"=1'-0"



ELEVATION '13-B'

STBD AFT SHELL LADDER

SCALE: 1/2"=1'-0"

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SHEET 13 OF 13

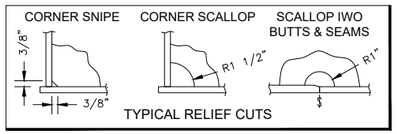
REV 3

EXHIBIT A-5 – Mechanical Arrangement

GENERAL NOTES

1. THIS DRAWING SHOWS THE ARRANGEMENT OF THE HYDRAULIC POWER PIPING ON DECK FROM THE HPU TO THE CONSUMERS. THESE CONSUMERS ARE FOUR TUGGER WINCHES, TWO SPUD–PILE WINCHES AND FOUR SPREAD–MOORING WINCHES. (1)
2. PRESSURE PIPING (SUPPLY) IS SIZED FOR 3000 PSI WORKING PRESSURE AT 142 GPM. RETURN PIPING IS SIZED FOR FOR RETURN TO TANK.
3. ONLY PRESSURE AND RETURN LINES ARE PROVIDED ON DECK. ALL FLOW AND PRESSURE CONTROL REQUIRED FOR WINCHES ARE TO BE SPECIFIED AND PROVIDED IN THE CONTROL PANEL BY THE WINCH SUPPLIER.
4. ALL PLAN VIEWS ARE TOP LOOKING DOWN. ALL SECTIONS ARE LOOKING AFT. ELEVATIONS VIEWS ARE AS FOLLOWS:
   - FROM STARBOARD SIDE: OUTBOARD LOOKING INBOARD
   - FROM PORT SIDE: INBOARD LOOKING OUTBOARD
3. DRAWING UNITS ARE IN FEET & INCHES.
4. ALL MATERIAL, WELDING, FABRICATION AND WORKMANSHIP IS TO BE IN ACCORDANCE WITH APPLICABLE ABS RULES AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
5. THERE SHALL BE NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE.
6. ALL NEW STEEL IS TO BE ABS GRADE A UNLESS NOTED OTHERWISE.
7. EXCEPT WHERE NOTED, ALL WELDS ARE TO BE DOUBLE CONTINUOUS FILLETS WRAPPED AT THE ENDS. UNLESS OTHERWISE INDICATED, WELDS SHALL BE SIZED PER THE TABLE SHOWN TO THE RIGHT. SIZES PERTAIN TO THE LEG LENGTH.
8. PROVIDE RELIEF CUTS AS SHOWN IN THE TABLE TO THE RIGHT. IF NONE IS SHOWN ON THE DETAIL, IT IS ASSUMED TO HAVE THE 3/8"x3/8" CORNER SNIPE AND IS TO BE FILLED WITH WELD. SCALLOPS SHALL HAVE RADII AS SHOWN IN THE TABLE BELOW UNLESS NOTED OTHERWISE.

FILLET WELD SIZING TABLE							
THICKNESS OF THINNER PLATE	≤1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	≥3/4"
FILLET WELD LEG SIZE	3/16"	7/32"	7/32"	1/4"	5/16"	5/16"	3/8"



DRAWING INDEX

ABBREVIATIONS

ABL ___ ABOVE BASELINE
ABT ___ ABOUT
BHD ___ BULKHEAD
BKT ___ BRACKET
BTM ___ BOTTOM
CHK ___ CHOCK
CL ___ CENTERLINE
CLR ___ CLEAR
CMG ___ COAMING
CTR ___ CENTER
DBL ___ DOUBLE
DET ___ DETAIL
D.O. ___ DITTO (SAME AS)
EXISTG ___ EXISTING
FR ___ FRAME
FWD ___ FORWARD
GDR ___ GIRDER
LONGL ___ LONGITUDINAL
NS ___ NEAR SIDE
N&F ___ NEAR & FAR
OPNG ___ OPENING
OUTBD ___ OUTBOARD
PLT ___ PLATE
PLTG ___ PLATING
REF ___ REFERENCE
STD ___ STANDARD
T&B ___ TOP & BOTTOM
TYP ___ TYPICAL
WT ___ WATERTIGHT

BILL OF MATERIALS

ITEM	QTY	UNIT	SIZE	DESCRIPTION	SPECIFICATION	
1	240	FT	2 IN ND	SCH 80 PIPE	ASTM A312 TP316L	
2	7	EA	2 IN ND	45 DEG ELBOW CL 3000 LB SOCKET WELD	ASTM A182 F316L	
3	1	EA	2 IN ND	90 DEG ELBOW CL 3000 LB SOCKET WELD	ASTM A182 F316L	
4	5	EA	2 IN ND	TEE CL 3000 LB SOCKET WELD	ASTM A182 F316L	
5	12	EA	2 IN ND	CODE 62 O-RING FLANGE	SAE J518 316L	(1)
6	12	EA	2 IN ND	CODE 62 FLAT FACE FLANGE	SAE J518 316L	(1)
~~7~~	~~7~~	~~EA~~	~~2 IN ND~~	~~CODE 62 BLIND FLANGE~~	~~SAE J518 316L~~	(1)
8	260	FT	2-1/2 IN ND	SCH 40 PIPE	ASTM A312 TP316L	
9	1	EA	2-1/2 IN ND	90 DEG ELBOW CL 3000 LB SOCKET WELD	ASTM A182 F316L	
10	4	EA	2-1/2 IN ND	TEE CL 3000 LB SOCKET WELD	ASTM A182 F316L	
11	12	EA	2-1/2 IN ND	CODE 61 O-RING FLANGE	SAE J518 316L	(1)
12	12	EA	2-1/2 IN ND	CODE 61 FLAT FACE FLANGE	SAE J518 316L	(1)
~~13~~	~~5~~	~~EA~~	~~2-1/2 IN ND~~	~~CODE 61 BLIND FLANGE~~	~~SAE J518 316L~~	(1)

NOTE: O-RING AND FLAT FACE FLANGES MARKED WITH (*) SHALL BE SUPPLIED BY WINCH VENDOR.
THE NUMBER OF FLANGES SHOWN DOES NOT INCLUDE THOSE NEEDED TO SPOOL PIPE.

NOTE: PIPE SUPPORTS NOT SHOWN IN TABLE. CONTRACTOR TO LAYOUT AND SOURCE THOSE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
0	ISSUE FOR BIDDING	3/08/21 / JRP
1	RE–ISSUE FOR BIDDING 1. INCLUDE SPREAD MOORING WITH INITIAL PROCUREMENT	6/13/22 / JRP
2	REVISED PER FINAL SPECIFICATION	AMH 2/6/25 JRP

REFERENCES

No.	TITLE	DWG No.
1	GENERAL ARRANGEMENT	2018-060-01-01
2	SPUD PILES	2018-060-01-03
3	OUTFITTING	2018-060-01-04
4	-	-
5	-	-

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DRWN: RJP/JRP	DATE: MARCH 08, 2021	SCALE: AS NOTED	
CHKD: JRP/JLG	APPD: SAS	ACADFILE: 180600105-2	
PROJECT FILE: 2018-060-01		PLOTSCALE: 1:2 ON ANSI full bleed B (11.00 x 17.00 Inches)	
ABS APPROVAL: -			
-			

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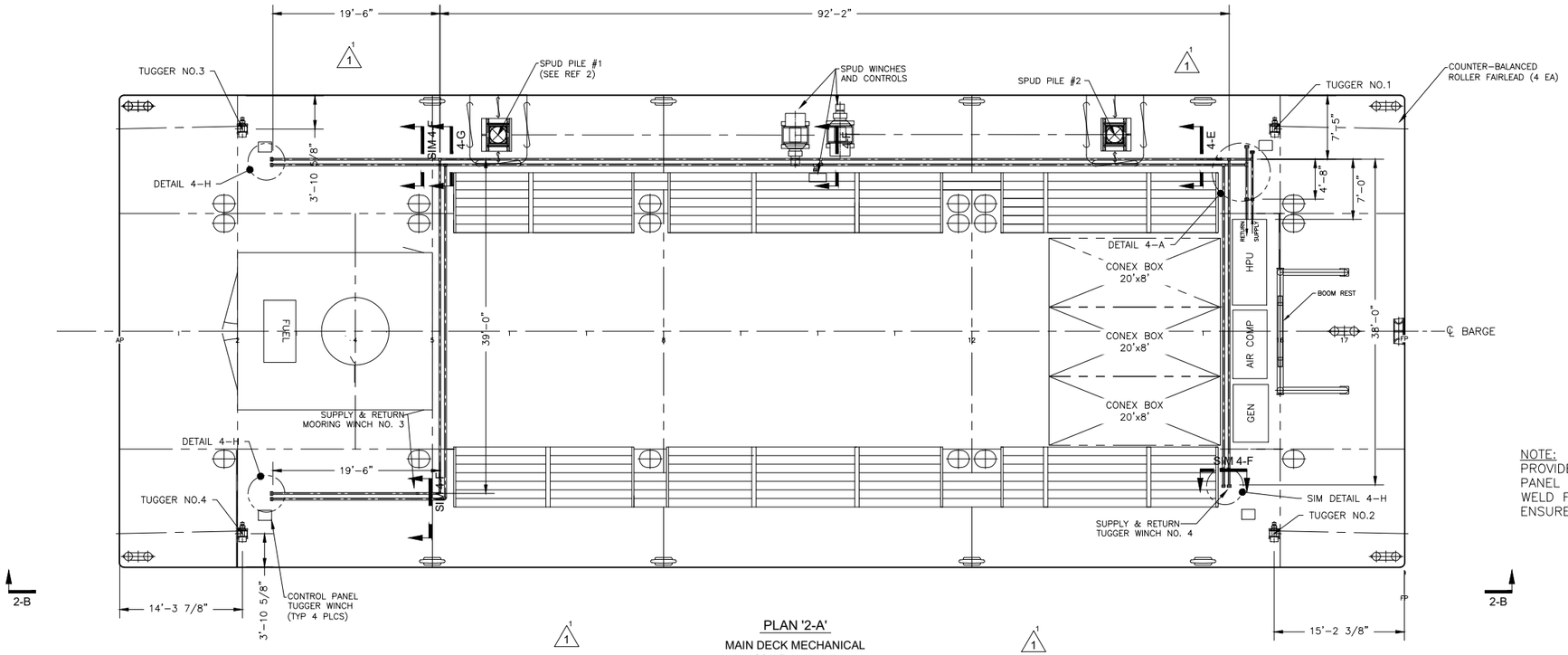
MECHANICAL ARRANGEMENT

OWNER APPVL: -	HEC DWG No.: 2018-060-01-05	
DATE: -		
FILE: -	SHEET 1 OF 4	REV 2

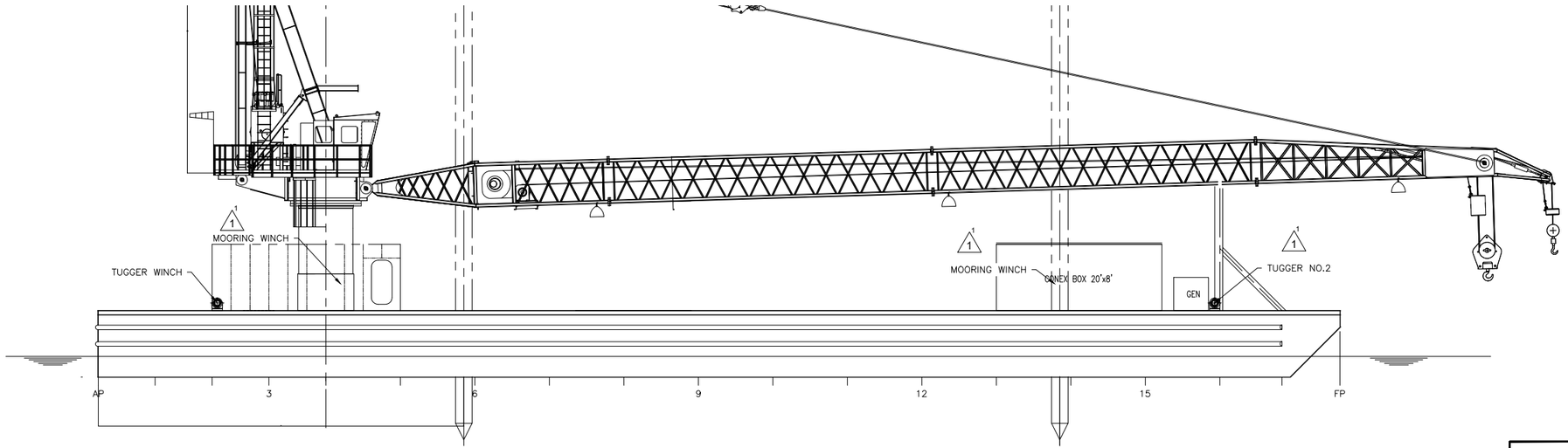


PLAN '2-A'

MAIN DECK MECHANICAL

SCALE: 3/16"=1'-0"

NOTE: VENDOR OF EACH CONSUMER OF HYDRAULIC POWER SHALL PROVIDE SUPPLY AND RETURN HOSES THAT CONNECT CONTROL PANEL TO DECK PIPING AND CONTROL PANEL TO WINCH. SOCKET WELD FLANGE AT PIPE TO BE SUPPLIED BY WINCH VENDOR TO ENSURE HOSE FLANGE MATCHES PIPE FLANGE.



ELEVATION '2-B'

MAIN DECK MECHANICAL

SCALE: 3/16"=1'-0"

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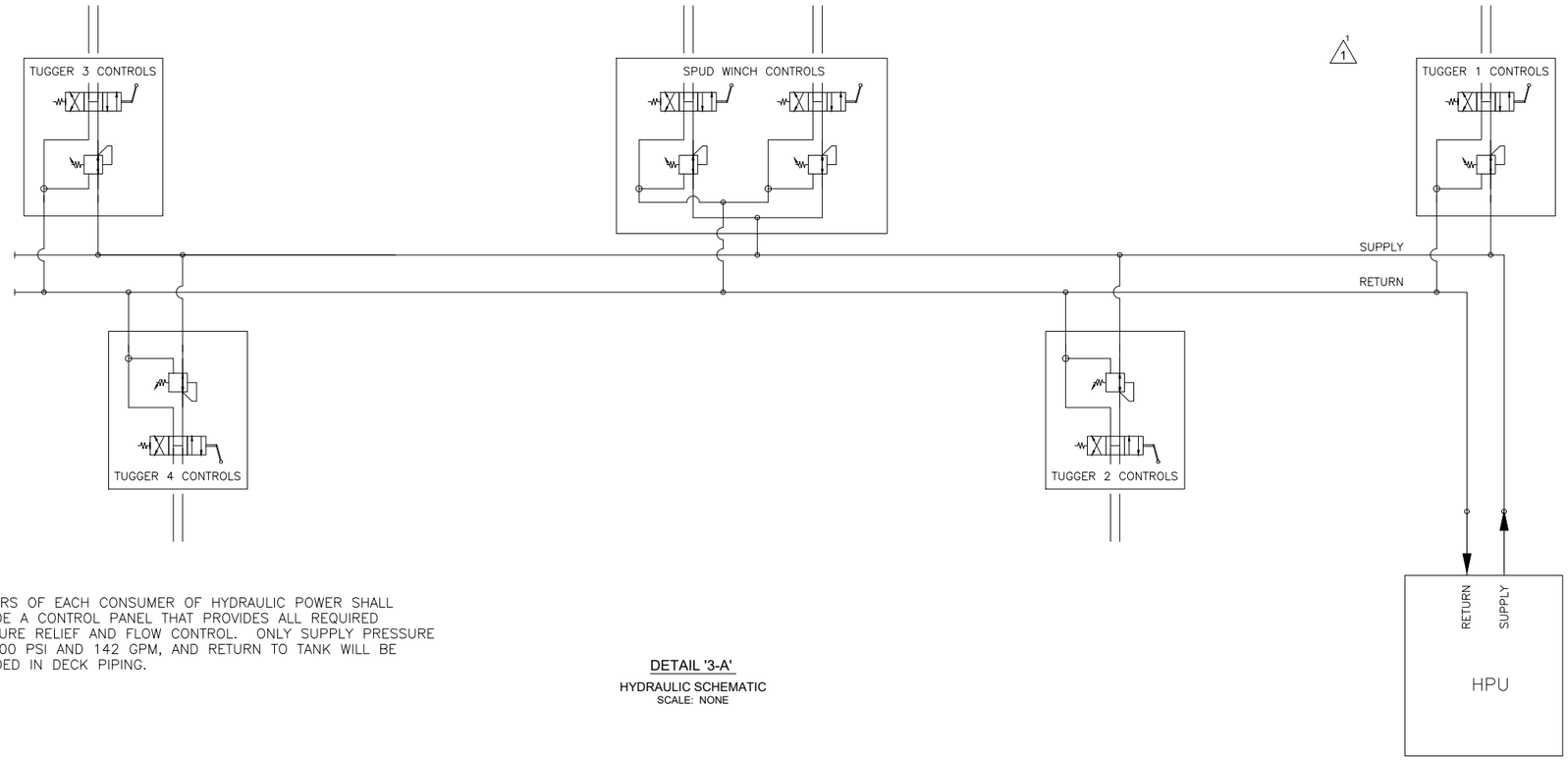
MECHANICAL ARRANGEMENT

HEC DWG No.: 2018-060-01-05

SCALE: AS NOTED

SHEET 2 OF 4

REV 2



NOTE:

VENDORS OF EACH CONSUMER OF HYDRAULIC POWER SHALL PROVIDE A CONTROL PANEL THAT PROVIDES ALL REQUIRED PRESSURE RELIEF AND FLOW CONTROL. ONLY SUPPLY PRESSURE OF 3000 PSI AND 142 GPM, AND RETURN TO TANK WILL BE PROVIDED IN DECK PIPING.

1

DETAIL '3-A'

HYDRAULIC SCHEMATIC
SCALE: NONE

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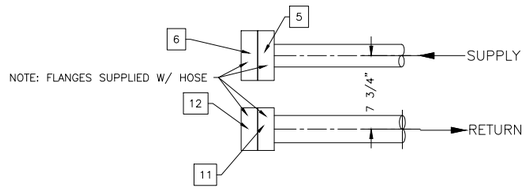
MECHANICAL ARRANGEMENT

HEC DWG No.: 2018-060-01-05
SCALE: AS NOTED
SHEET 3 OF 4
REV 2

NOTE: SEE BILL OF MATERIALS SHEET 1 FOR ITEM DESCRIPTION

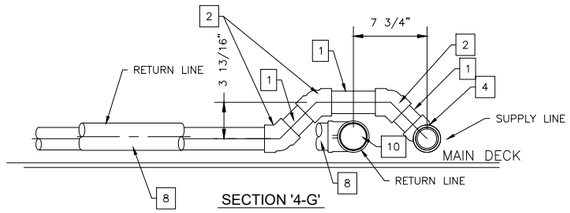


DETAIL '4-H'

PIPING TERMINATION

SCALE 3/4" = 1'-0"

(TYP 3 PLCS)

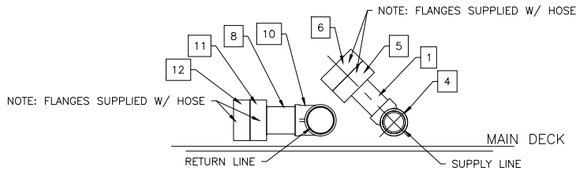


SECTION '4-G'

PIPING PORT SIDE - LKG AFT

SCALE 3/4" = 1'-0"

(SUPPLY AND RETURN TO TUGGER NO. 4)

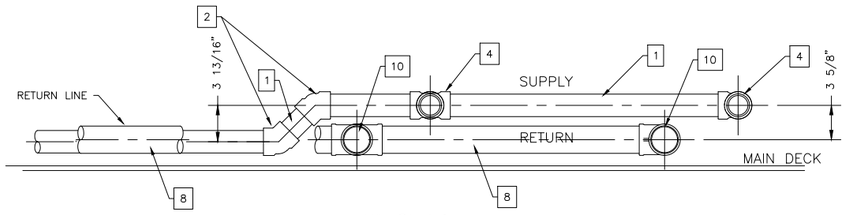


SECTION '4-F'

PIPING PORT SIDE - LKG AFT

SCALE 3/4" = 1'-0"

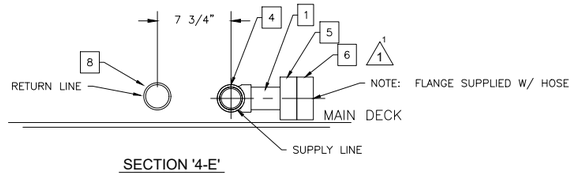
(SUPPLY AND RETURN CONNECTIONS FOR SPUD PILE WINCHES)



ELEVATION '4-B'

PIPING PORT SIDE - LKG PORT

SCALE 3/4" = 1'-0"

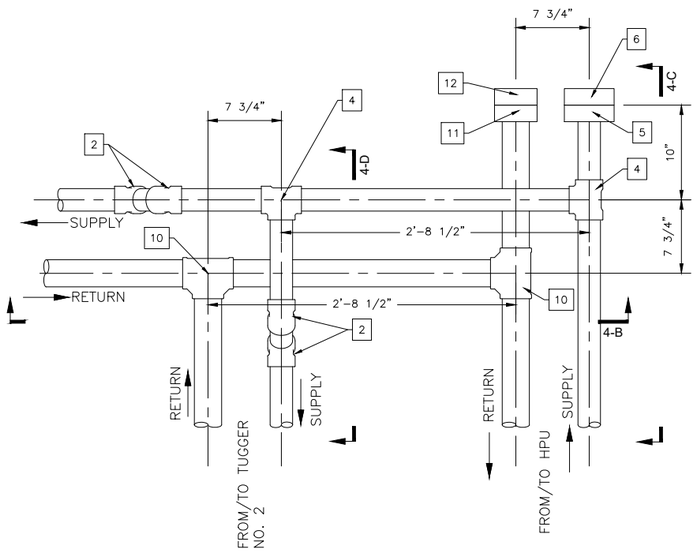


SECTION '4-E'

PIPING PORT SIDE - LKG AFT

SCALE 3/4" = 1'-0"

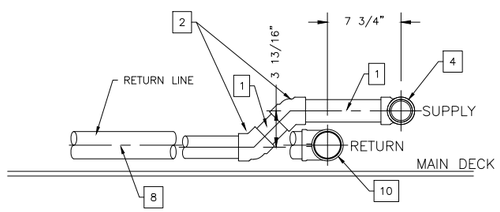
(SUPPLY CONNECTION FOR NO. 1 MOORING WINCH)



DETAIL '4-A'

PIPING PORT FORWARD

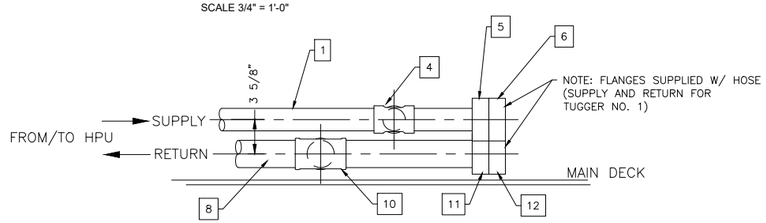
SCALE 3/4" = 1'-0"



SECTION '4-D'

PIPING PORT SIDE - LKG AFT

SCALE 3/4" = 1'-0"



SECTION '4-C'

PIPING PORT SIDE - LKG AFT

SCALE 3/4" = 1'-0"

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PORT OF SAN FRANCISCO

DEPARTMENT OF ENGINEERING

CRANE BARGE

MECHANICAL ARRANGEMENT

HEC DWG No.:	SCALE: AS NOTED	REV
2018-060-01-05	SHEET 4 OF 4	2

EXHIBIT A-6 – Electrical One-Line Diagram

GENERAL NOTES

1. THIS DRAWING PRESENTS THE ONE-LINE DIAGRAM FOR THE ELECTRICAL SYSTEM FOR A CRANE BARGE FOR PERFORMING ROUTINE REPAIRS AND OTHER LIFTING WORKS ALONG THE SAN FRANCISCO WATERFRONT.
2. THE CONCEPT PRESENTED HERE IS DEPENDENT ON SPECIFIC EQUIPMENT AND FIXTURES THAT WILL BE INSTALLED.
3. FOR LOCATION OF ELECTRICAL COMPONENTS, SEE DRAWING 2018-060-01-01 "GENERAL ARRANGEMENT".

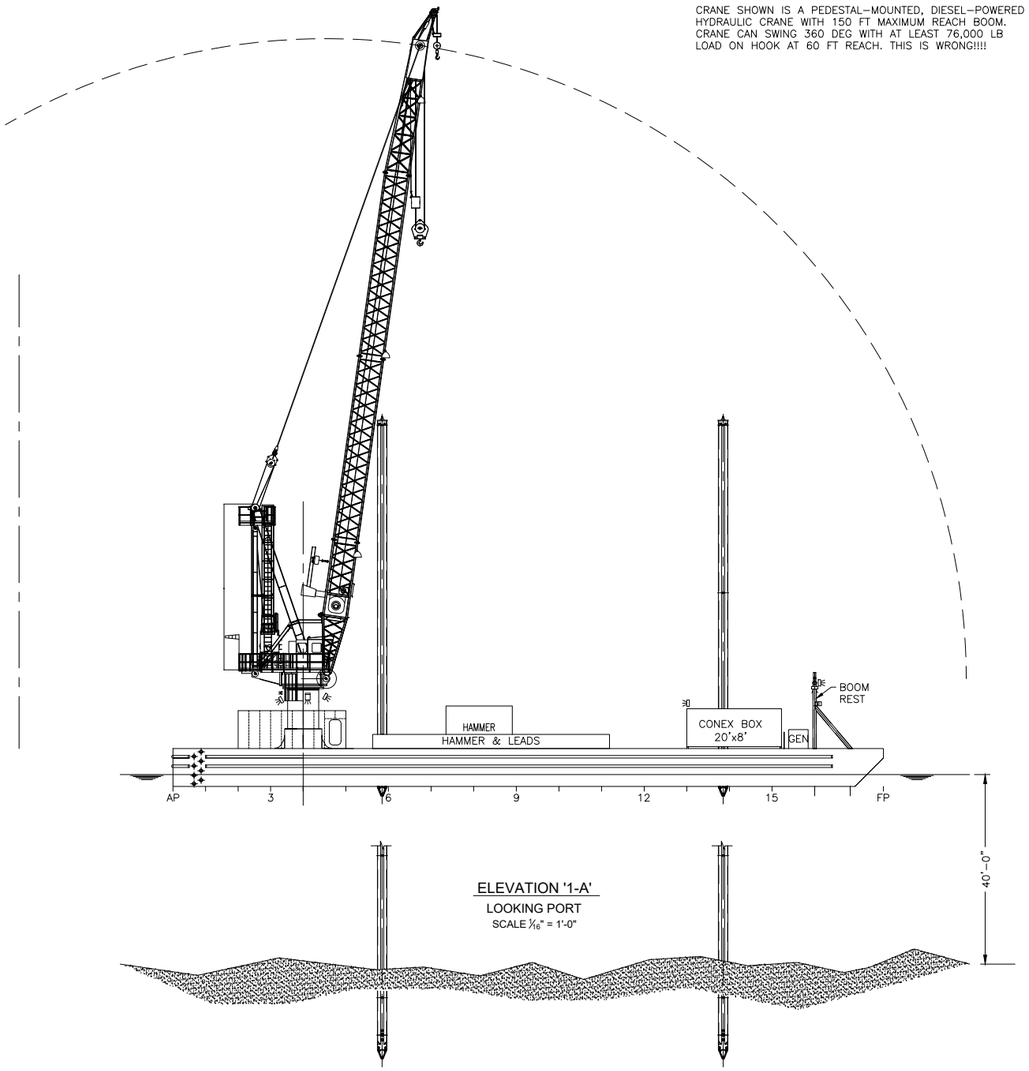
ABBREVIATIONS

ABL ___ ABOVE BASELINE
ABT ___ ABOUT
BHD ___ BULKHEAD
BKT ___ BRACKET
BTM ___ BOTTOM
CHK ___ CHOCK
CL ___ CENTERLINE
CLR ___ CLEAR
CMG ___ COAMING
CTR ___ CENTER
DBL ___ DOUBLE
DET ___ DETAIL
D.O. ___ DITTO (SAME AS)
EXISTG ___ EXISTING
FR ___ FRAME
FWD ___ FORWARD
GDR ___ GIRDER
LONGL ___ LONGITUDINAL
NS ___ NEAR SIDE
N&F ___ NEAR & FAR
OPNG ___ OPENING
OUTBD ___ OUTBOARD
PLT ___ PLATE
PLTG ___ PLATING
REF ___ REFERENCE
STD ___ STANDARD
T&B ___ TOP & BOTTOM
TYP ___ TYPICAL
WT ___ WATERTIGHT

DRAWING INDEX

1

CRANE SHOWN IS A PEDESTAL-MOUNTED, DIESEL-POWERED HYDRAULIC CRANE WITH 150 FT MAXIMUM REACH BOOM. CRANE CAN SWING 360 DEG WITH AT LEAST 76,000 LB LOAD ON HOOK AT 60 FT REACH. THIS IS WRONG!!!!



ELEVATION '1-A'
LOOKING PORT
SCALE 1/16" = 1'-0"

REVISIONS

No.	DESCRIPTION	BY/DATE/APPD
-	PRELIMINARY ISSUE TO CLIENT FOR REVIEW	JRP/AS 1/25/2021 JRP
0	ISSUE FOR BIDDING	JRP/AS 3/8/2021 JRP
1	REISSUE FOR BIDDING 1. REMOVE PRINCIPAL PARTICULARS FROM SHEET 1	JRP/ 6/13/2022 JRP
2	REVISED PER FINAL SPECIFICATION	AMH 2/6/25 JRP

REFERENCES

No.	TITLE	DWG No.
1	GENERAL ARRANGEMENT	2018-060-01-01
2	-	-
3	-	-
4	-	-
5	-	-

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DRWN: AS	DATE: JAN 25, 2021	SCALE:	AS NOTED
CHKD: AS/JRP	APPD: SAS	ACADFILE:	180600106-2
PROJECT FILE:	2018-060-01	PLOTSCALE:	1:2 ON ANSI D
ABS APPROVAL: -			
-			

SAN FRANCISCO PORT COMMISSION
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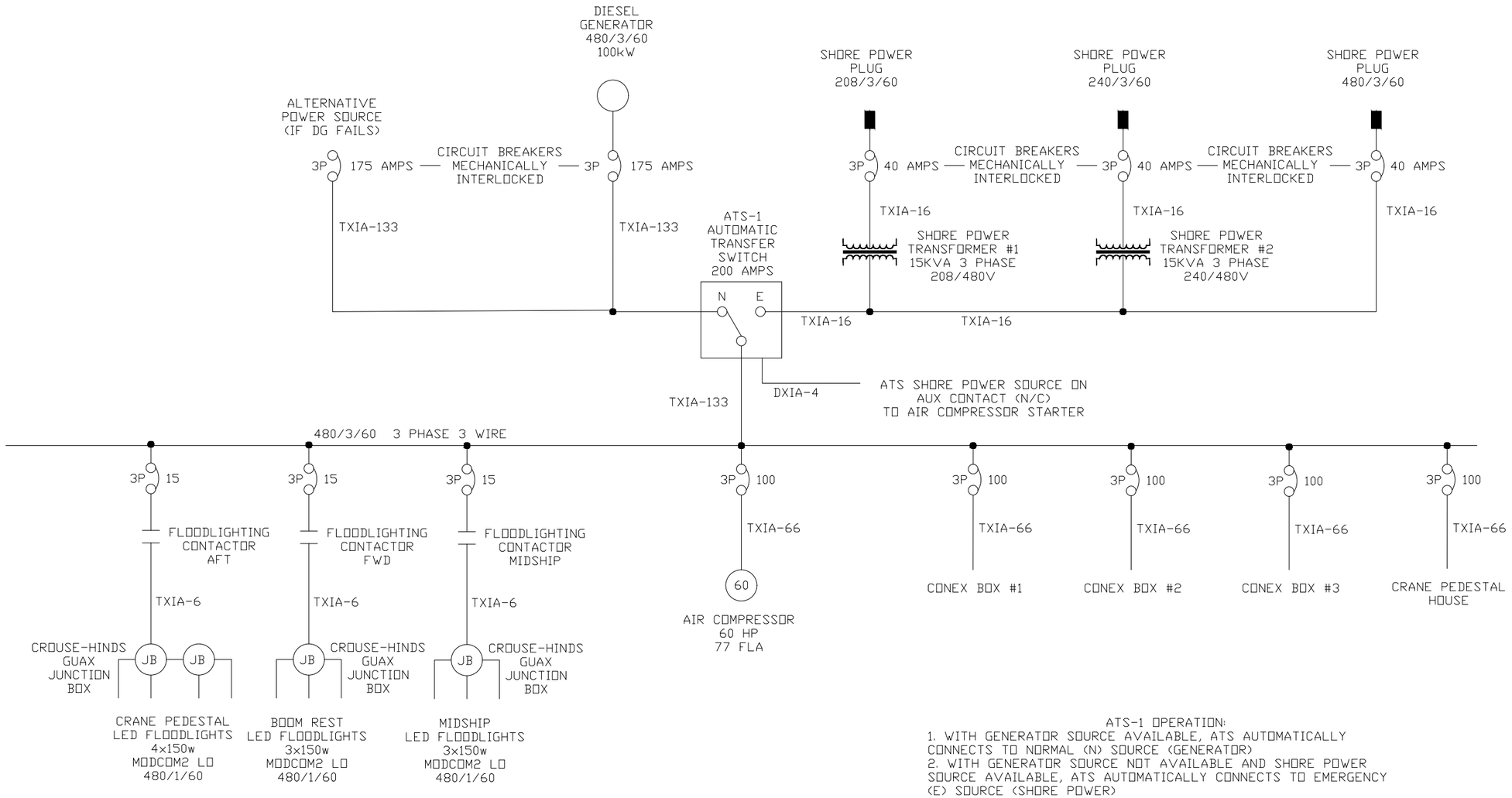
DEPARTMENT OF ENGINEERING

CRANE BARGE

ELECTRICAL ONE-LINE DIAGRAM

OWNER APPVL: -	HEC DWG No.: 2018-060-01-06	
DATE: -	SHEET 1 OF 5	REV 2
FILE: -		



LED FLOODLIGHT & INSIDE LIGHT FIXTURES
MANUFACTURED BY PHOENIX LIGHTING

DETAIL '2-A'

BARGE ONE LINE

SCALE: NONE

ATS-1 OPERATION:
1. WITH GENERATOR SOURCE AVAILABLE, ATS AUTOMATICALLY CONNECTS TO NORMAL (N) SOURCE (GENERATOR)
2. WITH GENERATOR SOURCE NOT AVAILABLE AND SHORE POWER SOURCE AVAILABLE, ATS AUTOMATICALLY CONNECTS TO EMERGENCY (E) SOURCE (SHORE POWER)
3. IF BOTH GENERATOR AND SHORE POWER SOURCES AVAILABLE, ATS AUTOMATICALLY CONNECTS TO NORMAL (N) SOURCE (GENERATOR)

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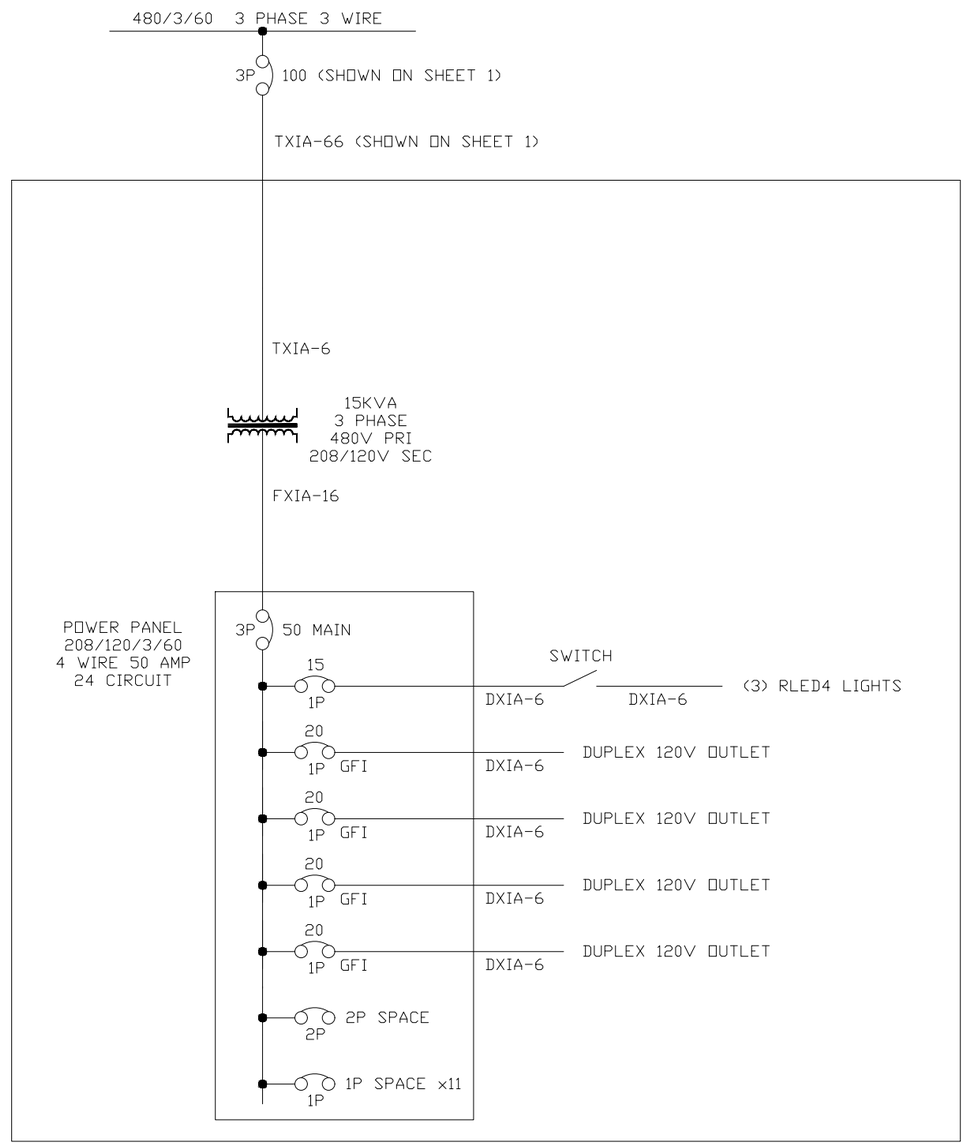
CRANE BARGE

ELECTRICAL ONE-LINE DIAGRAM

HEC DWG No.:	SCALE:		
2018-060-01-06	AS NOTED	SHEET 2 OF 5	REV 2



TYPICAL FOR EACH CONEX BOX

LED FLOODLIGHT & INSIDE LIGHT FIXTURES
MANUFACTURED BY PHOENIX LIGHTING

DETAIL '3-A'

CONEX BOX ONE LINE

SCALE: NONE

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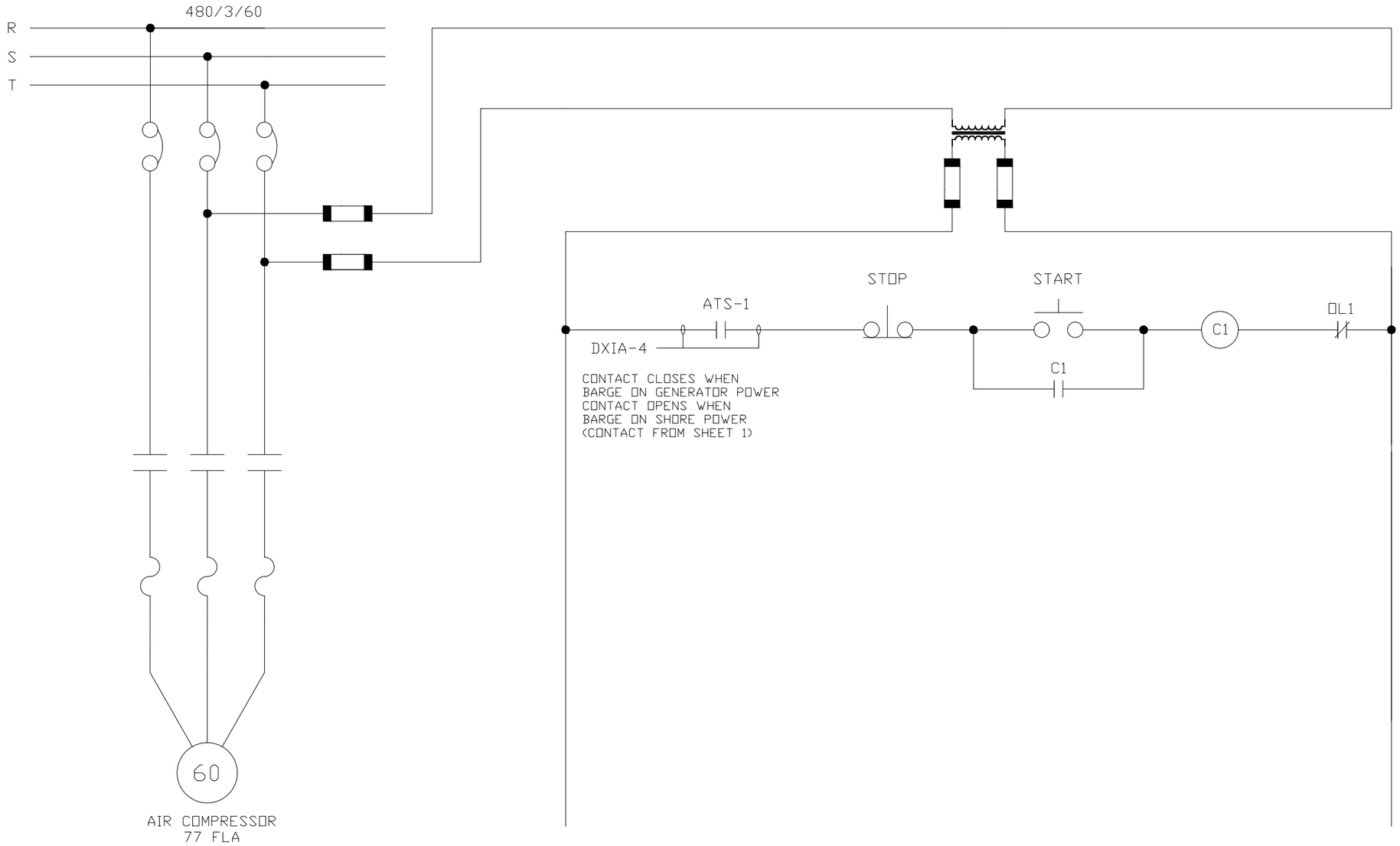
CRANE BARGE

ELECTRICAL ONE-LINE DIAGRAM

HEC DWG No.: 2018-060-01-06	SCALE: AS NOTED	REV 2
	SHEET 3 OF 5	



DETAIL '4-A'

AIR COMPRESSOR ONE LINE

SCALE: NONE

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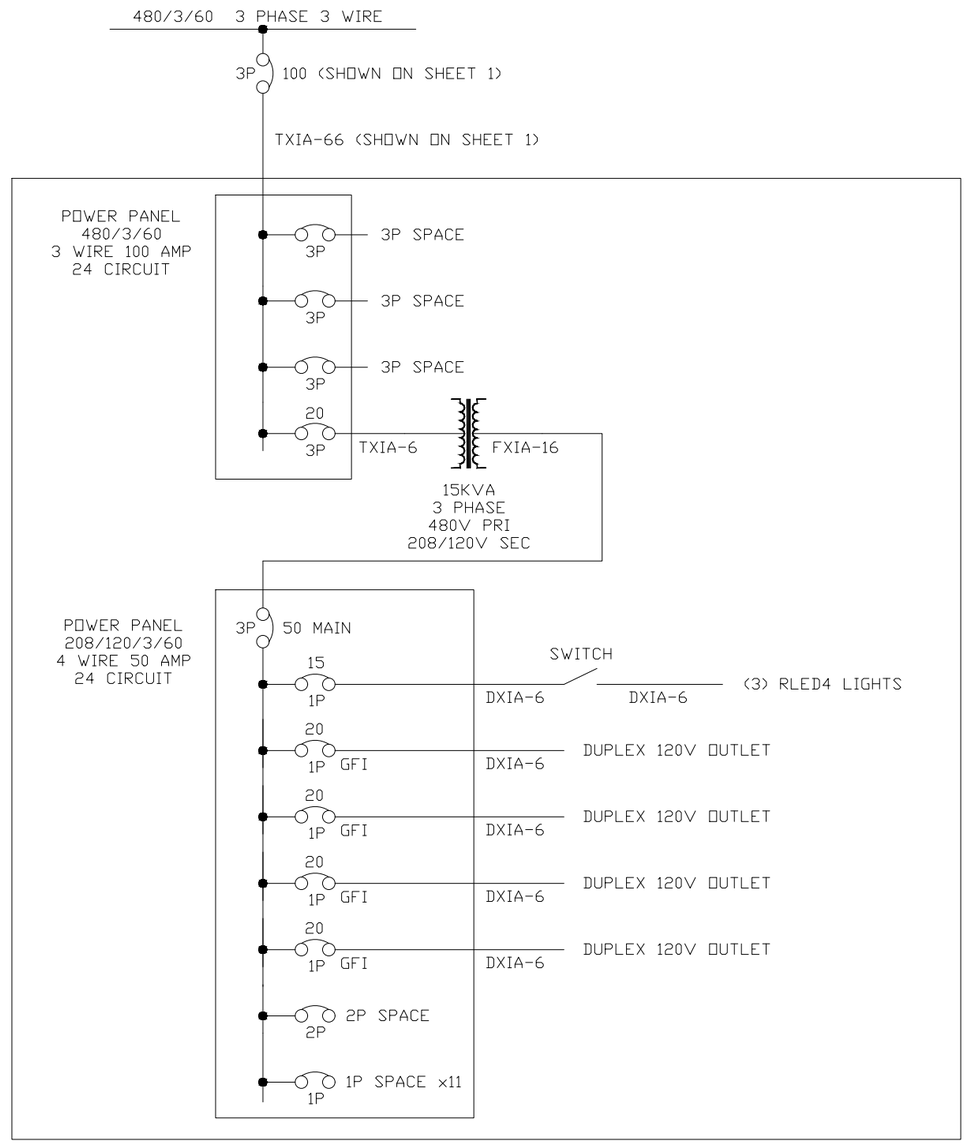
CRANE BARGE

ELECTRICAL ONE-LINE DIAGRAM

HEC DWG No.: 2018-060-01-06	SCALE: AS NOTED	SHEET 4 OF 5	REV 2



DETAIL '5-A'

CRANE PEDESTAL HOUSE ONE LINE

SCALE: NONE

LED FLOODLIGHT & INSIDE LIGHT FIXTURES
MANUFACTURED BY PHOENIX LIGHTING

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CRANE BARGE

ELECTRICAL ONE-LINE DIAGRAM

HEC DWG No.:	SCALE:	REV
2018-060-01-06	AS NOTED SHEET 5 OF 5	2

Appendix E

Schedule

The Parties intend to adhere to the following Schedule. Aside from the Delivery Date, as that term is defined in the Agreement, this Schedule may be adjusted upon written agreement of the Parties without formal amendment or modification of the Agreement. Contractor shall, with each invoice, provide City an update on the progression of the Work and, if necessary, request an adjustment to the schedule. Contractor shall provide any requests to adjust the schedule as soon as is practicable following contractor's determination that such a request is necessary, but in any event no later than upon submission of the next invoice.

[APPROVED SCHEDULE NEXT PAGE]

POSF Crane Barge Project - Contract Schedule

		Duration	Approximate Completion Date	2025 May	June	July	August	September	October	November	December	2026 January	February	March	April	May	June	July	August	September	October	November	December
Administrative																							
	Dutra and POSF - Finalize Project Details and Contract		5/28/2025	X																			
	Contract NTP	1 Day	7/14/2025			X																	
3.1	Kickoff Meeting / Partnering Session	1 Day	7/23/2025			X																	
3.1	Confirmation of Steel Pricing	1 Day	9/19/2025					X															
Barge																							
3.2	Submit Design Calculations 65% for weight, stability, and functional lifting capacity	7 Days	7/21/2025			X																	
3.2	Design Calculations 65% - approved by Port for weight, stability, and functional lifting capacity	7 Days	7/28/2025			X																	
3.2	Submit Design Calculations 100% for weight, stability, and functional lifting capacity	7 Days	8/4/2025				X																
3.2	Design Calculations 100% - approved by Port for weight, stability, and functional lifting capacity	7 Days	8/11/2025				X																
3.3	Submit Design Drawings 35% for Structure and Arrangement	15 Days	7/29/2025			X																	
3.3	Design Drawings 35% for Structure and Arrangement approved by Port	7 Days	8/5/2025				X																
3.3	Submit Design Drawings 65% for Structure and Arrangement	14 Days	8/19/2025				X																
3.3	Design Drawings 65% for Structure and Arrangement approved by Port	7 Days	8/26/2025				X																
3.3	Submit Design Drawings 100% for Structure and Arrangement	10 Days	9/5/2025				X	X															
3.3	Design Drawings 100% for Structure and Arrangement approved by Port	7 Days	9/12/2025					X															
3.4	Submit Shop Drawings 35%	33 Days	9/7/2025				X	X															
3.4	Shop Drawings 35% approved by Port	7 Days	9/14/2025					X															
3.4	Submit Shop Drawings 65%	33 Days	10/17/2025					X	X														
3.4	Shop Drawings 65% approved by Port	7 Days	10/24/2025						X														
3.4	Submit Shop Drawings 100%	33 Days	11/26/2025						X	X													
3.4	Shop Drawings 100% approved by Port	7 Days	12/3/2025							X	X												
3.5	Material Order to Steel and other primary suppliers	7 Days	9/19/2025					X															
	Barge Fabrication and Outfitting	8 Months	7/31/2026								X	X	X	X	X	X	X	X	X				
3.7	Completion of Hull Structure and Tank Testing	1 Week	7/31/2026															X					
Crane																							
3.6	Crane Order issued to vendor	14 Days	7/28/2025			X																	
	Crane Engineering	3 Months	10/26/2025				X	X	X														
	Manufacturing	9 Months	7/28/2026							X	X	X	X	X	X	X	X	X					
3.7	Crane Factory Acceptance Test and Delivery	7 Days	7/28/2026															X					
	Delivery to Outfitting Location	7 Days	8/4/2026																X				
Outfitting																							
3.7	Crane Installation and Functional Testing onboard barge	30 Days	9/3/2026																X	X			
3.7	Substantial Completion walk-through and testing of all equipment and components	14 Days	9/17/2026																	X			
3.7	Deadweight Survey and hull inclining experiment	7 Days	9/24/2026																	X			
	Transit to West Coast	50 Days	11/13/2026																	X	X	X	
3.8	Final Inspection of all Fabrication	7 Days	11/20/2026																			X	
3.8	Final Inspection of all Equipment and Components as installed on board	7 Days	11/27/2026																			X	
3.8	Operational Testing of all equipment as installed on board	7 Days	12/4/2026																				X
3.8	Lifting Capacity test for Crane with Barge free floating	7 Days	12/11/2026																				X
3.9	Completion of Milestone 3.9 including final trials upon Delivery	7 Days	12/18/2026																				X

Appendix F

Change Orders and Claims

ARTICLE 1 - CLARIFICATIONS AND CHANGES IN THE WORK

1.01 GENERALLY

A. The City may, at any time between the Notice to Proceed and Final Completion and without notice to Contractor's surety, order additions, deletions, or revisions in the Work by Change Order, Unilateral Change Order, or Field Order. Contractor shall promptly comply with such orders and proceed with the Work, which shall be performed under the applicable requirements of the Contract Documents.

B. Contractor shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time if Contractor performs work that is not required by the Contract Documents as amended, modified, or supplemented in writing.

C. The procedures set forth in this Appendix F are intended to ensure that when Clarifications and Changes in the Work are proposed, the Contractor provides the City with its best estimate of the costs and impacts associated with each Clarification and/or Change, so that the City may evaluate each potential Change and proceed on an informed basis. The City also intends that the Clarification and Change Order procedures (including the use of Unilateral Change Orders and Force Account) facilitate payment to the Contractor of additional, undisputed amounts.

D. Failure by the Contractor to comply with the procedures of this Appendix, including the failure to provide timely, sufficient information and/or documentation to the City at the time of any Clarification or Change Order Request, shall constitute a waiver of any subsequent claim by the Contractor arising out of such Clarification or Change Order.

1.02 REQUESTS FOR INFORMATION, CLARIFICATIONS AND FIELD ORDERS

A. Should there appear to Contractor to be a discrepancy in the Contract Documents, should questions arise as to the meaning or intent of the Contract Documents, or should the City's comments on submittals returned to Contractor appear to Contractor to change the requirements or scope of the Contract Documents, Contractor shall submit a Request for Information ("RFI") to the City promptly. Contractor shall coordinate and schedule its Work to provide the City sufficient time to issue a written reply to the RFI before proceeding with Work affected thereby.

B. The City shall issue a reply to the RFI within 10 working days of receipt of the same. The reply may include written Clarifications as deemed by the City to be necessary and consistent with the Contract Documents, or a Field Order requiring minor changes in the Work. If additional time is needed to issue the reply, the City will, within the 10 working-day reply period, notify the Contractor of the longer reply period. However, if the City’s response time impacts the Schedule, the City shall extend the Schedule accordingly.

C. Clarifications of the Contract Documents and Field Orders issued by the City shall be binding on Contractor and shall be promptly executed by Contractor. The City's right to clarify any element of the Contract Documents shall not be construed to automatically entitle Contractor to a modification of the Contract Sum or a change in the Contract Time, though it may.

1.03 CHANGE ORDER REQUESTS AND PROPOSED CHANGE ORDERS

A. COR Initiation: Should the City's Clarification or other written directive or determination, in the opinion of Contractor, materially exceed or change the requirements of the Contract Documents, Contractor shall submit to the City a written Change Order Request ("COR") within 10 working days of receipt of the Clarification or other written directive or determination. A COR shall reference the Clarification or other written directive or determination and the relevant Specification and Drawings, and clearly state reasons why a change is needed. A COR shall also include a cost proposal and/or a time adjustment proposal to the extent knowable, as a good faith estimate of any additional compensation or time associated with the affected Work, documented in accordance with subparagraphs 1.03E and 1.03F, below, and a narrative describing the scope of the COR including means and methods, sequence of Work, and other information necessary to fully understand the scope of the COR. The COR shall also include, as a minimum standard, quantity take offs and extensions identifying equipment and material against a specific Work task within the scope. Failure to submit a timely, reasonably well documented COR shall constitute a waiver of any future claim for additional compensation or time relating to such Work.

B. COR Review: The City will review the COR. Within 10 working days after receipt of the COR and all required supporting documentation, the City will issue a written determination accepting or rejecting the COR in whole or in part. If the City requires additional time to issue a determination, it shall notify the Contractor of the same in writing, within the initial 10 working-day period. A final determination is any determination on a COR which states that it is final. If the City issues a final determination denying a COR in whole or in part, Contractor may contest the decision by filing a timely Notice of Potential Claim per Article 2 of this Appendix F. If the City does not issue a determination within the 10 working-day period, or such other period as set forth in a written notice, then the Contractor may deem the COR rejected and the City's issuance, on the last day of the applicable period, of a final decision denying the COR in its entirety and may, thereafter, contest the decision by filing a timely Notice of Potential Claim per Article 2 of this Appendix F.

C. PCO Initiation: The City may initiate a change in the Work by issuing a Proposed Change Order ("PCO"). A PCO will include a detailed description of the proposed additions, deletions or revisions with supplementary or revised Drawings and Specifications, and will request from Contractor a quotation of cost and time for completing the proposed changes. After the City issues a PCO, Contractor shall not submit a COR for the same Work addressed in the City's PCO.

D. PCO Quotation Time Period: Contractor shall submit a PCO cost proposal and PCO time adjustment proposal, if applicable, to the City within 10 working days after receipt of a PCO. If Contractor fails to submit a PCO cost proposal and/or PCO time adjustment proposal within the 10 working-day period, or if the price or time adjustment cannot be agreed upon, the City may either direct Contractor to proceed with the Work on a Force Account basis or a

Unilateral Change Order instructing Contractor to proceed with the PCO Work based on the City's estimate of the cost and/or time adjustment, subject to a protest / claim as identified below.

E. COR and PCO Cost Proposal Requirements: The Cost Proposal shall include a complete itemized breakdown of labor, material, equipment, taxes, insurance, bonds, and markup for overhead and profit for both additions and deletions on a form supplied by the City. The same shall be required for related Subcontractor and Lower-Tier Subcontractor cost proposals, which shall be furnished on the same form as required for Contractor.

1) At a minimum, Contractor shall provide the following documentation to the City in support of Contractor and Subcontractor cost proposals:

a. material quantities and type of products;

b. labor breakdown by trade classification, wage rates, and estimated hours;

c. equipment breakdown by make, type, size, rental rates, and equipment hours; and

F. COR and PCO Time Adjustment Proposal Requirements: If Contractor asserts it is entitled to an adjustment in Contract Time due to the proposed change order work, whether by COR or PCO, Contractor shall provide the following documentation to the City in support of any Contractor and Subcontractor time adjustment proposals:

1) Contractor shall submit to the City a CPM time impact evaluation using sub-network or fragmentary network and including a written narrative and a schedule diagram or other written documentation acceptable to the City, showing the detailed work activities involved in a change that may affect the Critical Path and increase the Contract Time. The analysis shall also show the impact of the change on other Work and activities of the proposed schedule adjustment. This sub-network shall be tied to the complete and most current City-accepted progress schedule network, with appropriate logic so that a true analysis of critical path can be made.

2) Failure to comply with the requirements set forth in this subparagraph 1.03F shall constitute a waiver of any claim for delay, disruption, extended overhead and other associated costs or damages.

1.04 CHANGE ORDERS

A. Execution of Change Orders; Modifications: When the City and Contractor agree on the total cost and time of a COR or PCO, the City will prepare for signatures of parties a Change Order to implement the changed Work. No oral instructions of any person whomsoever shall in any manner or degree modify or otherwise affect the terms of this Contract. Change Orders that result in an increase to the amount certified by the Controller for the Project are subject to the Certification by Controller requirements of the City's Charter and are effective upon incorporation into an approved Modification.

B. Release of Claims: The parties agree to make good faith efforts to settle all Change Orders full and final at the time of Change Order execution. Accordingly, City and Contractor acknowledge and agree that Change Orders shall contain the following provision, unless and

only if the City determines that good cause exists to use different release language for a specific change order:

"The compensation (time and cost) set forth in this Change Order comprises the total compensation due to Contractor, all Subcontractors and all Suppliers, for the Work or change defined in the Change Order, including reasonably foreseeable impact on unchanged Work. By executing this Change Order, Contractor acknowledges and agrees on behalf of itself, all Subcontractors, and all Suppliers, that the stipulated compensation includes payment for all Work contained in the Change Order, plus all payment for the reasonably foreseeable interruption of schedules, extended field and home overhead costs (if any), delay, and all impact, ripple effect or cumulative impact on all other Work under this Contract. The execution of this Change Order indicates that the Change Order constitutes full mutual accord and satisfaction for the change, and that the time and/or cost under the Change Order constitutes the total equitable adjustment owed the Contractor, all Subcontractors, and all Suppliers as a result of the change, unless not reasonably foreseeable. The Contractor, on behalf of itself, all Subcontractors, and all Suppliers, agrees to waive all reasonably foreseeable rights, without exception or reservation of any kind whatsoever, to file any further reasonably foreseeable claim related to this Change Order. No further claim or request for equitable adjustment of any type for any reasonably foreseeable cause shall arise out of or as a result of this Change Order or the impact of this Change Order on the remainder of the Work under this Contract."

C. Change Orders issued under this Article or extensions of Contract Time made necessary by reason thereof shall not in any way release any guarantees or warranties given by Contractor under the provisions of the Contract Documents, nor shall they relieve or release Contractor's sureties of bonds executed under such provisions. The sureties, in executing such bonds, shall be deemed to have expressly agreed to any such Change Orders and to any extension of time made by reason thereof. Contractor shall be responsible for giving notice of any change affecting the Work, Contract Sum or Contract Times that is required to be given to its sureties by the provisions of any bond.

1.05 UNILATERAL CHANGE ORDERS

A. General: When time does not allow for a Change Order to be negotiated, or when the City and Contractor are unable to agree on the cost or time required to complete the change in the Work, the City may issue a Unilateral Change Order instructing Contractor to proceed with a change in the Work based on the City's estimate of cost and time to perform the change in the Work. Upon receipt of a Unilateral Change Order, Contractor shall proceed with the ordered Work.

B. Protest: If time did not allow for Contractor to submit a complete Cost and/or Time Adjustment Proposal prior to the issuance of a Unilateral Change Order, and Contractor disagrees with any terms or conditions set forth in a Unilateral Change Order and wishes to protest the Unilateral Change Order, Contractor shall submit, within 10 working days of receipt of the Unilateral Change Order, a complete Change Order Request (“COR”) in accordance with the requirements of Paragraph 1.03 (including a complete Cost and/or time Adjustment Proposal, as applicable). If a COR is not timely submitted as required, Contractor waives all rights to additional compensation for said Work, and payment, which shall constitute full compensation

for Work included in the Unilateral Change Order, will be made as set forth in the Unilateral Change Order. The City will review the COR and issue a determination per Paragraph 1.03. If the City denies the COR in whole or in part, Contractor may contest the decision by filing a timely Notice of Potential Claim per subparagraph 1.05C, below. As a point of clarification, the protest procedures specified in this subparagraph do not apply to circumstances where Contractor submitted a complete Cost Proposal and/or Time Adjustment Proposal prior to the issuance of the Unilateral Change Order at issue, and the City subsequently issued a Unilateral Change Order because the parties were unable to timely agree on the cost and/or time to complete the change in the work. In such circumstances, if Contractor disagrees with any terms or conditions set forth in the Unilateral Change Order and wishes to pursue the dispute, Contractor must submit a timely Notice of Potential Claim per subparagraph 1.05C, below (but does not have to submit a revised/new COR).

C. Claim Notification: Contractor waives all costs exceeding the City's estimate for the Unilateral Change Order Work unless Contractor submits a written Notice of Potential Claim in accordance with the requirements of Article 2 below. Said Notice shall be submitted no later than 10 working days after occurrence of one of the following potential claim events, whichever occurs first:

1) Contractor submits an invoice for completion of the Unilateral Change Order Work; or

2) Upon Contractor's receipt of written notice from the City that the City considers the Unilateral Change Order Work completed.

1.06 COST OF CHANGE ORDER WORK

A. For Change Order Work and Change Order Work proposal pricing, Contractor will be paid the sum of the direct costs for labor, materials and equipment used in performing the Work as determined by the procedures set forth in this subparagraph 1.06A.

1) Labor. Contractor will be paid the cost of labor for the workers used in the actual and direct performance of the Change Order Work. Working foremen will be considered a direct cost of the Change Order Work only if the individual is on Site physically installing the Work. The costs for all supervision, including general superintendents and foremen not on Site, will not be considered a direct cost and shall be included the markup defined in subparagraph 1.06B, below. The cost of labor, whether the employer is Contractor, a subcontractor, or other forces, will be the sum of the following:

a. Actual Wages. The actual wages paid shall include any actual payments by the employer for its workers' health and welfare, pension, vacation, training, and similar purposes.

b. Labor Surcharge. To the actual wages, as defined above, will be added a labor surcharge as set forth in the version of the California Department of Transportation publication entitled Labor Surcharge and Equipment Rental Rates which is in effect on the date upon which the extra work is accomplished and which is incorporated by reference as though set forth in full. That labor surcharge shall constitute full compensation to Contractor for all of its costs for worker's compensation insurance, Social Security, Medicare, federal unemployment insurance, state unemployment insurance, and state training taxes. No other fixed labor burdens will be considered, unless approved in writing by the City.

c. Subsistence and Travel Allowance. The actual subsistence and travel allowance paid to such workers.

2) Materials: The City will pay Contractor on Change Orders only for those materials furnished by Contractor and directly required for performing the Change Order Work. The cost of such material shall be the direct cost, including sales tax, to the purchaser, whether Contractor, Subcontractor or Lower-Tier Subcontractor, from the Supplier thereof and may include the cost of transportation, but delivery charges will not be allowed unless the delivery is specifically required for the Change Order Work. If a trade discount by an actual Supplier is available to Contractor, such discount shall be credited to the City if Contractor received such discount . If the materials are obtained from a Supplier or source owned wholly or in part by Contractor, payment thereof shall not exceed the current wholesale price for the materials. The term "trade discount" includes the concept of cash discounting.

3) Equipment: Payment for equipment costs on Change Orders will be made at the lesser of the rental rates listed for such equipment as specified in the current edition, at the time of the Change Order, of: (i) the Labor Surcharge & Equipment Rental Rate Book (including its supplement Miscellaneous Equipment Rental Rates) published by the California Department of Transportation and available for download at http://www.dot.ca.gov/hq/construc/equipmnt.html; or (ii) "Rental Rate Blue Book," published by EquipmentWatch, a unit of Penton Media, Inc., 181 Metro Drive, Suite 410, San Jose, California 95110, phone (800) 669-3282 (see http://www.equipmentwatch.com/Marketing/RRBB_overview.jsp for information).

Such rental rates shall be adjusted as appropriate and will be used to compute payments for equipment, regardless of whether the equipment is under Contractor's control through direct ownership, leasing, renting, or other method of acquisition; provided, however, for equipment rented or leased in arm's length transactions with outside vendors, Contractor will be reimbursed at the actual rental or leased invoice rates when such rates are reasonably in line with the applicable rates specified in the publications identified above . Arm's length rental or lease transactions are those in which the firm involved in the rental or lease of such equipment is not associated with, owned by, have common management, directorship, facilities, or stockholders with the firm renting the equipment. Contractor has the burden of proof to demonstrate that a rental or lease transaction was an arm's length transaction. Contractor shall submit copies of all rental or lease invoices, and other information as requested by the City, if any, as supporting documentation with each PCO cost proposal.

Contractor shall provide all necessary equipment ownership and other information as requested by the City.

a. Daily, weekly, or monthly rates shall be used, whichever are lower. Hourly rates including operator shall not be used. Unless otherwise specified, manufacturer's ratings and manufacturer-approved modifications shall be used to classify equipment for determination of applicable rental rates. If, however, equipment of unwarranted size or type and cost is used, the cost shall be calculated at the rental rate for equipment of proper size and type. The actual time to be paid for equipment shall be the time the equipment is in productive operation on the Work under the Change Order. No payment will be made for time while equipment is inoperative due to breakdown or for non-work days. In addition, the rental time shall not include the time required to move the equipment to and from the Site. Loading and transportation costs will be paid, in lieu of rental time, only if the equipment does not move under its own power and is

utilized solely for the Work of the Change Order. No mobilization or demobilization will be allowed for equipment already on the Site. Equipment that is idle, non-operating or in standby mode shall be reimbursed at the lesser of Caltrans' rates, as adjusted by Caltrans' Delay Factor, or EquipmentWatch's rates, as adjusted by its standby calculation, unless such equipment is rented or leased as provided above.Individual pieces of equipment having a replacement value of $1,000 or less shall be considered to be small tools or small equipment, and no payment will be made since the costs of these tools and equipment are included as part of Contractor's markup for overhead and profit as defined in subparagraph 1.06B.

b. Payment to Contractor for the use of equipment as set forth herein shall constitute full compensation to Contractor for the cost of fuel, power, oil, lubricants, supplies, small equipment, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, labor (except for equipment operators), and any and all costs to Contractor incidental to the use of the equipment.

B. Costs Included as Part of Markup for Overhead and Profit: To the total of the direct costs computed as provided in subparagraph 1.01A there will be added a markup for overhead and profit as specified in subparagraph 1.06C. The markup shall constitute full compensation for all direct and indirect overhead costs and profit which shall be deemed to include all items of expense not specifically listed in subparagraph 1.06A as direct costs. No separate allowance or itemization for overhead costs shall be allowed. The following is a list, not intended to be comprehensive, of the types of costs that are included in the markup for overhead and profit for all Change Orders including Force Account Work:

1) Field and home office personnel including, but not limited to, principals, project managers, superintendents, supervisory foremen, estimators, project engineers, detailers, draftspersons, schedulers, consultants, watchpersons, payroll clerks, administrative assistants, and secretaries.

2) All field and home office expenses including, but not limited to, field trailers, parking, storage sheds, office equipment and supplies, telephone service at the Site, long-distance telephone calls, fax machines, computers and software, internet and e-mail services, temporary utilities, sanitary facilities and services, janitorial services, small tools and equipment with a cost under $1,000 each, portable scaffolding, blocking, shores, appliances, job vehicles, security and fencing, conformance to all regulatory requirements including compliance with safety regulations, safety programs and meetings, cartage, warranties, record documents, and all related maintenance costs.

3) Administrative functions including, but not limited to, reviewing, coordinating, distributing, processing, posting, recording, estimating, negotiating, scheduling, schedule updating and revising, expediting, surveying, engineering, drawing, detailing, revising shop drawings, preparing record drawings, carting, cleaning, protecting the Work, and other incidental Work related to the Change Order.

4) Bond and insurance costs.

5) All other costs and taxes required to be paid, but not included under direct costs as defined in subparagraph 1.06A.

C. Contractor's Markup for Overhead and Profit: The following maximum percentage markups shall be applied to the total direct costs for each direct cost category. These markups provide for all indirect and overhead costs and profit:

Changed/Extra Work – Direct Costs	Markup Percentage
Contractor direct labor	15%
Contractor direct materials	15%
Contractor direct equipment	15%
Subcontractor (of any tier) direct labor	35%
Subcontractor/Supplier (of any tier) direct materials	15%
Subcontractor/Supplier (of any tier) direct equipment	15%

1) For Work performed by a Subcontractor, Contractor shall receive a maximum 7.5% markup on the Subcontractor's total cost (total cost includes direct costs plus applicable markups specified above). Such additional 7.5% markup shall reimburse Contractor for all additional indirect, administrative and overhead costs associated with Change Order Work performed by the Subcontractor.

2) For Work performed by a Lower-Tier Subcontractor, Contractor and Subcontractor shall each receive a maximum 7.5% markup on the total cost of their respective Lower-Tier Subcontractors. Such additional 7.5% markup shall reimburse Contractor and Subcontractor for all additional indirect, administrative and overhead costs associated with Change Order Work performed by the Lower-Tier Subcontractor.

3) In no case shall the sum of the individual markups specified in subparagraphs 1.06C.1 and 1.06C.2, above, exceed 20%, regardless of the number of Subcontractor tiers involved in performing the Change Order Work.

D. For Work to be deleted by Change Order, the reduction of the Contract Sum shall be computed on the basis of one or more of the following: (i) Unit Prices stated in the Contract Documents; (ii) where Unit Prices are not applicable, a lump sum based upon the costs which would have been incurred in performing the deleted portions of the Work as calculated in accordance with Paragraph 1.06, supported by a Cost Proposal as required by Paragraph 1.03. Neither Contractor nor the Subcontractor shall receive a markup on their respective Lower-Tier Subcontractors to administer the credit Change Order.

1) When both additions and credits are involved in any one Change Order, Contractor's markup shall be computed on the basis of its direct costs and labor productivity for the net change in the quantity of the Work. For example, if a Change Order adds 14 units on one Drawing and deletes 5 units on another Drawing, the markup shall be based on the net addition of 9 units. No markup will be allowed if the deductive cost exceeds the additive cost.

2) If the City issues written notice of deletion of a portion of Work after the commencement of such Work or after Contractor has ordered acceptable materials for such Work which cannot be cancelled, or if part or all of such Work is not performed by Contractor because it is unnecessary due to actual Site conditions, payment will be made to Contractor for direct costs of such Work actually performed plus markup for overhead and profit as provided in subparagraph 1.06C and as otherwise provided under Termination for Convenience Section 8.1.

3) Contractor shall not be compensated for costs incurred after receipt of the City's written notice deleting the portion of Work, except as otherwise provided under Termination for Convenience Section 8.1.

4) Materials ordered by Contractor prior to the City's issuance of a notice of deletion shall be paid for by the City and shall become the property of the City, and the City will pay for the actual cost of any further handling of such material. If the material is returnable to the vendor, and if the City so directs, the material shall be returned and Contractor will be paid only for the actual charges made by the vendor for returning the material including restocking charges.

E. Costs Not Included in the Work: Contractor shall be solely responsible for determining which of its Subcontractors and Suppliers receive Change Orders. No additional compensation will be provided Contractor for the cost of its Subcontractors and Suppliers to review, post, coordinate, and perform related tasks to administer Change Orders which do not result in direct cost charges from such Subcontractors or Suppliers. Such costs shall be considered normal business costs, which are contractually determined between Contractor and its Subcontractors and Suppliers prior to Bid, and such costs shall be included in Contractor's Total Bid Price.

F. Records: Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of Change Orders and the cost of original Contract Work. This requirement pertains to all types of Change Orders, as well as the additions, deletions, revisions, CORs, and Claims initiated by Contractor.

ARTICLE 2 - CONTRACT AND GOVERNMENT CODE CLAIMS

2.01 CLAIMS GENERALLY

A. The City and Contractor acknowledge and agree that early identification and resolution of potential claims or disputes benefits all parties and advances the success of the Project.

B. The notice requirements and procedures set forth under this Article 2 are necessary for the City to address potential claims and disputes. Having knowledge of potential claims and having documentation from the Contractor concerning a dispute as Work is being performed is critical for the City to make informed decisions which could impact the budget and schedule for the Project.

C. Compliance with the Notice of Potential Claim and Contract Claim submission procedures prescribed in this Article are condition precedents to the right to file a Government Code Claim under California Government Code section 900, et seq., and Administrative Code

Chapter 10. As set forth in subparagraph 2.04, Contractor's submittal of timely and proper Notices of Potential Claims and Contract Claims may, in some circumstances, toll Contractor's compliance with the Government Code Claim requirements until the Contract Claim process is finally completed. Refer to subparagraph 2.04, below. The timely submittal of both a properly completed Contract Claim and a Government Code Claim are conditions precedent to commencing litigation against the City for disputes arising out of or related to this Contract and not expressly excluded from the Contract Claim process per subparagraph 2.01D, below. Disputed issues not timely raised and properly documented in conformance with this Article shall be deemed waived by the Contractor and may not be asserted in a Government Code Claim, subsequent litigation, or legal action. Furthermore, by executing this Contract, Contractor waives any and all claims or defenses of waiver, estoppel, release, bar, or any other type of excuse of non-compliance with the Contract Claim submission requirements.

D. The Contract Claim procedures specified in this Article 2 do not apply to the following: (1) claims respecting penalties for forfeitures prescribed by statute or regulation which a government agency is specifically authorized to administer, settle, or determine; (2) claims respecting personal injury, death, reimbursement, or other compensation arising out of or resulting from personal injury of death; (3) claims by the City; or (4) claims respecting stop notices.

E. The requirements of this Article 2 shall survive expiration or termination of this Contract.

2.02 NOTICE OF POTENTIAL CLAIM

A. If, during the course of the Project, the Contractor seeks an adjustment of the terms of the Contract Documents, an adjustment to the Contract Sum and/or Contract Time, or other relief with respect to the Contract Documents, including a determination of disputes or matters in question between the City and the Contractor arising out of or related to the Contract Documents or the performance of Work (including without limitation determination of delay, assessment of liquidated damages, Proposed Change Orders, Unilateral Change Orders, denial of Change Order Requests, payment, nonpayment, termination for cause, termination for convenience, or other act by the City impacting or potentially impacting payment, nonpayment, withholding, or the performance of the Work), then the Contractor must submit to the City a timely Notice of Potential Claim to preserve its right to seek such additional compensation and/or time.

B. Contractor must submit a Notice of Potential Claim to the City within fifteen (15) working days of the event, activity, occurrence, or other cause giving rise to the potential Claim. For potential Claims that involve or relate to an extra, change, addition or deletion to the Work, Contractor’s fifteen day period to submit a Notice of Potential Claim will commence when the City Representative issues a final written decision denying, in whole or in part, Contractor’s Change Order Request or other proper request for adjustment to the Contract Sum and/or Contract Time. Note that Contractor’s failure to comply with required notice and submittal requirements for Change Order Requests (Article 1) shall constitute grounds to deny any related Claim.

C. A Notice of Potential Claim shall describe the nature and circumstances of the potential claim event, set forth the reason(s) for which Contractor believes additional

compensation and/or time will or may be due, and provide a good faith estimate of the cost and/or time impact to which Contractor believes it may be entitled.

D. The Notice of Potential Claim provides early notice to the City of a disputed issue and provides the City with the opportunity to mitigate associated costs, allowing for early resolution. Failure by Contractor to submit a timely Notice of Potential Claim shall constitute a waiver of any claim arising out of the event, activity, occurrence, or other cause giving rise to the potential Claim.

E. The requirements of Paragraph 2.02 apply will be tolled if the disputed issue underlying a potential claim event has been referred or submitted to an issue resolution/escalation ladder, Dispute Review Board, Dispute Resolution Advisor, or similar dispute resolution process that may be required by the Contract Documents.

2.03 CONTRACT CLAIM

A. General. The Contract Claim shall be the Contractor's sole and exclusive administrative remedy for additional compensation or time associated with its performance of the Work under the Contract. Failure to submit a timely, certified, and documented Contract Claim in conformance with this Article shall constitute a waiver by the Contractor as to any claims relating to its performance of the Work under the Contract and a failure to exhaust its administrative remedies.

B. Deadline to Submit Contract Claim. The time to submit a Contract Claim will depend on the dispute resolution process(es) that are incorporated into the Contract Documents.

1) If the Contract Documents require the establishment of an issue resolution/escalation ladder, Dispute Review Board, Dispute Resolution Advisor, or similar mandatory or optional supplemental dispute resolution process(es), and Contractor timely refers a disputed issue to the applicable process(es), then the time to submit a Contract Claim shall be extended as set forth in the Contract Document that implements the supplemental dispute resolution process(es). For example, as set forth in Section 00 73 10 (if used), for disputes reviewed by a Dispute Resolution Advisor and heard using a formal Dispute Meeting, Contractor must submit any certified Contract Claim for the dispute no later than 15 days after expiration of the acceptance period for the DRA Report. Contractor's timely referral of a disputed issue to a supplemental dispute resolution process which the Contract Documents identify as mandatory (e.g., Dispute Review Board) is a prerequisite to filing a Contract Claim under this Article. By failing to timely refer a disputed issue to the applicable mandatory supplemental dispute resolution process specified in the Contract Documents, Contractor waives future Contract Claims relating to the disputed issue.

2) The following Contract Claim submittal requirements apply (i) if the Contract Documents do not establish a supplemental dispute resolution process or (ii) the Contract Documents establish an optional supplemental dispute resolution process(es) and Contractor elects to not refer the disputed issue to an optional supplemental dispute resolution process. In such cases, Contractor may file a Contract Claim only as to disputed issues presented to and rejected by the City Representative through the Notice of Potential Claim process set forth in Paragraph 2.04, above. The City Representative will respond, in writing, to Contractor's Notice of Potential Claim, submitted per Paragraph 2.04, within 30 days of receipt of the Notice. If the

City Representative requires additional time to issue a determination, he or she will notify the Contractor of the same in writing, within the initial 30-day review period. Contractor shall submit a Contract Claim within 15 working days of receipt of the City Representative's written determination on the Notice of Potential Claim if Contractor disputes the City Representative's written determination and wishes to preserve its right to pursue the disputed issue. In the event that the City Representative does not issue a written determination on Contractor's Notice of Potential Claim within the prescribed period, the Contractor may submit a Contract Claim either after 15 days of the expiration of the prescribed period, or 45 days after submitting its Notice of Potential Claim, whichever is later.

C. Contract Claim Certification Requirement:

1) Contractor, under penalty of perjury, shall submit with the Contract Claim certification by Contractor and its Subcontractor(s), as applicable, that:

a. the Claim is made in good faith;

b. supporting data are accurate and complete to the best of Contractor's and/or Subcontractor's knowledge and belief; and

c. the amount requested accurately reflects the Contract adjustment for which Contractor believes the City is liable.

2) An individual or officer who is authorized to act on Contractor's behalf shall execute the certification. Failure to certify a claim under penalty of perjury shall render the Contract Claim incomplete but shall not constitute its waiver unless Contractor fails to cure the deficiency promptly upon notice thereof.

3) In regard to a Claim or portion of a Claim by a Subcontractor, Contractor shall fully review the Subcontractor's Claim and shall certify the Subcontractor's Claim or such relevant portion(s) of the Subcontractor's Claim, under penalty of perjury, in the same manner the Contractor would certify its own claim under the foregoing subparagraph 2.03C.1 based on information and belief. The City will not consider a direct claim by any Subcontractor. Subcontractors at any tier are not third-party beneficiaries of this Contract.

4) Contractor hereby agrees that failure to furnish certification as required in this Article shall render the Contract Claim incomplete but shall not constitute its waiver unless Contractor fails to cure the deficiency promptly upon notice thereof.

5) Contractor further acknowledges and agrees that if it submits a false claim, on behalf of itself or a Subcontractor, Contractor may be subject to civil penalties, damages, debarment, and criminal prosecution in accordance with local, state, and federal statutes.

D. Format of a Contract Claim:

1) The Contractor shall document its Contract Claim in the following format:

a. Cover letter and certification.

b. Narrative Summary of Claim merit and amount, and clause under which the Claim is made.

c. List of documents relating to Claim:

1. Specifications

2. Drawings
3. Clarifications/RFIs
4. Correspondence
5. Schedules
6. Other

d. Chronology of events and correspondence.

e. Analysis of Claim merit.

f. Analysis of Claim cost (money and time).

g. Attachments:

1. Specifications
2. Drawings
3. Clarifications/RFIs
4. Correspondence
5. Schedules
6. Other

E. Additional Requirements for Contract Claims Seeking Time Extensions or Contesting the Assessment of Delay:

1) All Contract Claims seeking time extensions or challenging the assessment of delay and/or liquidated damages shall include, in addition to all other applicable requirements of this Article 2, a written analysis of all changes and all delays impacting the as-built critical path (the "As-Built Schedule Analysis"). Contractor shall base its As-Built Schedule Analysis on an as-built schedule that incorporate all actual start and finish dates, actual durations of activities, and actual sequences of construction. Contractor shall obtain the as-built schedule from the most recent base line schedule or progress schedule update as of the time of the activity, occurrence or other cause giving rise to the Claim. Contractor shall create the as-built schedule as an early start schedule, and the schedule shall use the original activity durations for all incomplete Work and the actual logic driving all activities. The As-Built Schedule Analysis shall incorporate all delays (including City, Contractor and third party Unavoidable Delay without exception) in the time frame that they occurred with actual logic ties. As part of its review of Contractor's As-Built Schedule Analysis, the City will determine the critical path and identify any City-caused and/or third party-caused delays (if any) on the critical path. The City will not review or consider any Contract Claim seeking time extensions or contesting the assessment of delay (including liquidated damages) that does not include an As-Built Schedule Analysis that meets the requirements of this Subparagraph.

F. Procedure For Review of a Contract Claim:

1) The City shall review only a timely, certified, and properly documented Contract Claim.

2) The City shall respond to a Contract Claim in writing, within 45 days of receipt of such Claim. In its response, the City shall either grant or deny the Claim in whole or in part. If

the City does not respond to a Claim within the 45-day period, the Claim is deemed denied in its entirety.

3) Within 10 days of the date of the City's response or expiration of the 45-day period, whichever is earlier, the Contractor may request review of the Contract Claim and the City's response by the Department Head. The request must be in writing, directed to the Department Head and copied to the City Representative. Failure by the Contractor to make a timely request to the Department Head, copied to the City Representative, shall constitute acceptance by the Contractor of the City's original response.

4) Upon a timely and proper request, the Department Head, or his/her designee (other than personnel assigned to the Project), shall review the relevant documents, meet with the Contractor and City personnel assigned to the Project, and confirm or revise the City's response to the Contract Claim. The Department Head, or his/her designee, shall issue such determination within 60 days of the date of the request for review. The determination by the Department Head, or his/her designee, shall constitute the final administrative determination of the City. If the Department Head takes no action on a request for review within the 60-day period, the City's original response shall constitute the final administrative determination by the City.

2.04 GOVERNMENT CODE CLAIM

A. For the purposes of this Contract, the City and the Contractor hereby agree that any action at law against the City arising out of or relating to Contractor's performance of the Work shall accrue either on the effective date of termination or on the date of Delivery, whichever is earlier. Notwithstanding the foregoing, the timely submittal of a complete and proper Notice of Potential Claim and Contract Claim under the administrative procedure specified in this Article 2 shall operate to toll Contractor's compliance with the Government Code Claim requirements under California Government Code section 900, et seq., and Administrative Code Chapter 10 until the City issues a final administrative determination per subparagraph 2.03F.4.