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SECTION 01010

SUMMARY OF WORK

PART 1. GENERAL

1.1 SUMMARY

- A. Work under this Contract generally includes demolition of existing private navigation aids and installation of two new private navigation aids at the entrance of the Oyster Point Marina channel.
- B. Documents to be provided by THE DISTRICT:
 - 1. Drawings
 - 2. Technical Specifications

1.2 SCOPE OF CONTRACTOR'S WORK

- A. The Work comprises the following items:
 - 1. Demolition and removal of existing navigation aid timber dolphin structures to include: two (2) timber platforms, navigation equipment, and six (6) timber piles.
 - 2. Transport and properly dispose of existing materials and equipment.
 - 3. Furnish and Install two (2) 30 inch diameter steel pipe piles
 - 4. Furnish and Install two (2) steel platforms, access ladders, gates and navigation equipment (i.e. lights and signs)
- B. The Work shall include furnishing all labor, materials, tools, equipment, supervision and any related services required to construct the two private aids as shown and specified.
- C. The Work shall include work covered by lump sum and unit prices.
- D. Unless otherwise provided elsewhere in these Contract Documents, all risk of loss to the Work covered by the Contract Documents shall rest with the Contractor until final completion and acceptance by THE DISTRICT of the Work.
- E. Schedule and Timing: Upon award of the Contract and issuance of Notice to Proceed, the Contractor shall proceed to complete the Work within the Contract Time.

1.3 COOPERATION OF CONTRACTOR AND COORDINATION WITH OTHER WORK

- A. The Contractor shall coordinate the work with the Owner's Designated Representative and its personnel, tenants/boat owners, or other contractors.
- B. The Contractor shall notify the Owner's Designated Representative at least fourteen (14) days before commencement of any work. The Owner's Designated Representative will then notify lessees and boat owners who may be affected by the dredging operations on/or adjacent to their property.

1.4 WORK CONSTRAINTS

- A. Access: Access to the Work Site shall be from San Francisco Bay, through the marina entrance and East Basin channel, only. Access to the Work Site shall be shared with other boats that use the same waterway to enter and exit the marina. Access to the Work Site from water shall be in accordance with the requirements of the permits listed in Section 1.6 "Permits" of these Contract Documents, as well as any U.S. Coast Guard requirements. Access for crew boats, survey boats and shift changes shall be through public launch ramps.
- B. Parking: Parking for Contractor's employee's vehicles shall be confined to an area to be designated by the Owner's Designated Representative, unless otherwise directed.
- C. Access by the Owner's Designated Representative and representatives: Contractor shall ensure that employees, inspectors and other representatives of the Owner's Designated Representative have access to the Work Site at all times.

1.5 SPECIAL CONDITIONS AND RESTRICTIONS PERTAINING TO WORK

- A. Contractor shall comply with the requirements of the City of South San Francisco Community Noise Regulations, Chapter 8.32 (1990) regarding exterior noise level standards, contained in the City of South San Francisco Municipal Code.
- B. Contractor shall comply with the United States Coast Guard requirements for the safe boating and other navigational operations while performing work on San Francisco Bay or any other area where the Coast Guard has jurisdiction.

1.6 PERMITS

- A. In addition to the permitting requirements contained in "Permits and Licenses" of the General Conditions of these Contract Documents, Contractor shall comply with all of the following:
 - 1. Corps of Engineers Permit: A copy of the U.S. Army Corps of Engineers Permit is included as part of the Contract Documents. Contractor and its Subcontractors shall employ personnel that have experience in complying with U.S. Army Corps of Engineers permits on similar projects. Contractor shall comply with all requirements in such permit that apply to the performance of the Work, and all rules, regulations and conditions of the U.S. Army Corps of Engineers that apply to the performance of the Work. Contractor's attention is directed to the general and special conditions of Permit, including but not limited to, the conditions pertaining to construction activities, barge operation, Coast Guard notification and interface, and appropriate construction documentation (plans, surveys, logs and reporting). Contractor is also advised that the Corps will consult with the California Department of Fish and Game, NOAA Fisheries, and the U.S. Fish and Wildlife Service, and construction shall be permitted to take place only during approved environmental work windows, beginning June 15, 2021 and ending on November 30, 2021. Such information is included in the permit materials provided to the Contractor.
 - 2. Bay Conservation and Development Commission Permit: The San Francisco Bay Conservation and Development Commission ("BCDC") will issue a Permit with respect to all aspects of the Work over which the BCDC has jurisdiction. The BCDC permit is scheduled to be issued no later than October 6, 2021. A copy of the permit shall be provided to the Contractor. Contractor shall comply with all requirements in such permit

that apply to the performance of the Work, all rules, regulations and conditions of the BCDC that apply to the performance of the Work, and all other applicable requirements in the Contract Documents.

3. Waste Discharge Requirements: The San Francisco Bay Regional Water Quality Control Board ("RWQCB") has issued a Water Quality Certification for the Oyster Point Marina Project. A copy of the Water Quality Certification is provided to the Contractor.
4. Changing Permit Conditions: In the event that permits necessary for the performance of the Work are required and obtained after the submission of the bids, Contractor shall be required to comply with all terms, conditions and requirements of such new or modified permit(s) and shall perform or provide services and/or provide materials which are different from those originally specified in the Contract Documents. In such case, Contractor shall not be entitled to any adjustment in the Contract Price or Contract Time except to the extent that such new or modified permit results in a Change in the Work and Contractor could not be reasonably expected to anticipate such revised terms, conditions or requirements based on conditions typically encountered and generally recognized in the implementation of similar permits, as may be determined by THE DISTRICT as set forth in the General Conditions these Contract Documents. Contractor shall be responsible for its costs of evaluating the implications for the changed Work, as well as the terms, conditions and restrictions of the new or modified permits. Contractor shall further be responsible for responding to any Requests for Proposals or THE DISTRICT-initiated change order issued in connection with the issuance of the new or modified permits.
5. Compliance with permit requirements in the performance of the Work shall not relieve Contractor of its obligation to comply with any and all other laws, regulations or permits described in the Contract Documents or necessary to complete the Work.

1.7 SECURITY

- A. The Contractor shall be responsible for security of the Work and of its equipment and materials at the project site.
- B. The Contractor shall at all-time exercise control over any persons, vehicles or boats, other than the persons, vehicles or boats visiting the Work Site from regulatory agencies.

1.8 UNDERGROUND FACILITIES

- A. The Contractor is responsible for coordinating all project documentation, including but not necessarily limited to, the Contract Documents and existing record drawings for the determination of the location of all underground facilities.
- B. Notice of Concealed or Unknown Conditions - Before commencing work of digging trenches or excavation, Contractor shall review all information available regarding subsurface conditions. Contractor shall also contact Underground Service Alert ("USA") and secure from it all information in its possession regarding underground conditions, including underground facilities at the Work Site. Contractor is charged with knowledge of all subsurface conditions reflected in USA records. Prior to commencing excavation or trenching work, Contractor shall provide THE DISTRICT with copies of all USA records secured by Contractor. Contractor shall

advise THE DISTRICT of any conflict between information provided by it and that provided by USA records.

- C. Contractor shall not receive any additional compensation for complying with the requirements of this section. Contractor shall be solely responsible for repairing any damage to underground facilities due to Contractor's failure to exercise due care.

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1. GENERAL

1.1 MEASUREMENT OF QUANTITIES

- A. **General** - Measurements of the completed work shall be in accordance with, and by instruments and devices calibrated to United States Standard Measures and the units of measurement for payment, and the limits thereof, shall be made as shown on the Plans, Specifications, General Requirements, and Supplementary Conditions.
- B. **Units of Measurement** - Measurements shall be in accordance with U.S. Standard Measures. A pound is an avoirdupois pound. A ton is 2,000 pounds avoirdupois. The unit of liquid measure is the U.S. gallon.
- C. **Certified Weights** - When payment is to be made on the basis of weight, the weighing shall be done on certified platform scales, or when approved by the Construction Manager, on a completely automated weighing and recording system. The Contractor shall furnish the Construction Manager with duplicate licensed weighmaster's certificates showing the actual net weights. The Owner will accept the certificates as evidence of the weights delivered.
- D. **Methods of Measurement** - Materials and items of work which are to be paid for on the basis of measurement shall be measured in accordance with the method stipulated in the particular sections involved. In determining quantities, all measurements shall be made in a horizontal plane unless otherwise specified.
 - 1. Material not used from a transporting vehicle shall be determined by the Construction Manager and deducted from the certified tag.
 - 2. When material is to be measured and paid for on a volume basis and it would be impractical to determine the volume, or when requested by the Contractor in writing and approved by the Construction Manager in writing, the material will be weighed and converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Construction Manager and shall be agreed to by the Contractor before such method of measurement of pay quantities will be adopted.
 - 3. Full compensation for all expense involved in conforming to the above requirements for measuring and weighing materials shall be considered as included in the unit prices paid for the materials being measured or weighed and no additional allowances will be made therefore.
 - 4. Quantities of material wasted or disposed of in a manner not called for under the Contract; or rejected loads of material, including material rejected after it has been placed by reason of failure of the Contractor to conform to the provisions of the Contract; or material not unloaded from the transporting vehicle; or material placed outside the lines indicated on the plans or given by the Construction Manager; or material remaining on hand after

completion of the Contract, will not be paid for and such quantities will be deducted from the final total quantities. No compensation will be allowed for hauling rejected material.

1.2 DESCRIPTION OF BID ITEMS

- A. Bid Items are presented to indicate major categories of the work for purposes of comparative bid analyses, payment breakdown for monthly progress payments to comply with the California Labor Code relating to the price for sheeting, shoring, and bracing of excavations. Bid items are not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, and equipment necessary to complete each Bid Item (work phase) as shown and specified.
1. Bid Item 1 – Mobilization and Demobilization
 - a. Bid Item 1 includes mobilization and demobilization of all work required to prepare the Contractor's equipment for transfer to and from the job site; transport equipment, labor, supplies and incidentals to and from the job site; prepare equipment; and maintain equipment in working condition at the job site during the demolition and construction period.
 - b. Bid Item 1 shall be measure by Lump Sum (LS).
 - c. There will be only one (1) mobilization and one (1) demobilization paid for each site. If for any other reason, the Contractor must shut down and remove his equipment from the site, then remobilize; then Foth or the Owner will not be responsible for payment of any additional costs associated with such work or any remobilization costs. Demobilization shall include general preparation for transfer of equipment to its home base, restoration as required from the Contractor's operations. If in the sole opinion of the Project Engineer, the Contractor's bid price for Mobilization appears unbalanced, the Project Engineer may request that the Contractor provide a detailed breakdown of all mobilization costs. If the Contractor cannot justify his mobilization costs based on standard cost accounting procedures, the Owner will only be obligated to make a mobilization payment equal to the accepted detailed costs, plus an amount of 20% for the Contractor's overhead and profit. The maximum allowable payment for mobilization shall be 60% of the Contractor's accepted Bid Item for Mobilization/ Demobilization or as substantiated by accounting data as set forth herein. The remaining 40% or any remaining contract fund owing under the Contractor Bid Item for Mobilization/Demobilization shall be paid for Demobilization, and shall be paid upon complete demobilization from the site, which shall include all cleanup and restoration as set forth herein and in accordance with the Contract Documents.
 2. Bid Item 2 – Demolition and Removal of Existing Navigation Aids
 - a. Bid Item 2 includes providing all labor, tools, equipment, supplies, and materials necessary to remove, transport, salvage and dispose of the wood piles, platform, signs, accessories, and any rubbish and debris resulting from the demolition of the existing navigation aids, as shown and specified in the contract documents.
 - b. Bid Item 2 shall be measure by Lump Sum (LS).
 3. Bid Item 3 – Furnish and Install 30" Monopiles

- a. Bid Item 3 includes providing all labor, tools, equipment, supplies, and materials necessary to furnish and install two (2) 30" steel pipe monopiles, pile caps, and pile connections as shown and specified in the contract documents.
 - b. Bid Item 3 shall be measure by Lump Sum (LS).
4. Bid Item 4 – Furnish and Install Prefabricated Steel Platform, Ladder and Accessories
- a. Bid Item 4 includes providing all labor, tools, equipment, supplies, and materials necessary to furnish and install two (2) steel platforms, railings, access ladders, navigation signs, lights, and gate as shown and specified in the contract documents.
 - b. Bid Item 4 shall be measured by Lump Sum (LS).

1.3 CONTRACTOR'S COST BREAKDOWN

- A. Lump Sum Price Breakdown - For work to be performed for a lump sum price, the Contractor shall submit a price breakdown to the Construction Manager prior to the first payment and within ten (10) days after Notice to Proceed. The price breakdown, as agreed upon by the Contractor and the Construction Manager, shall be used for preparing future estimates for partial payments to the Contractor, and shall list the major items of work with a price fairly apportioned to each item. Mobilization, overhead, bond, insurance, other general costs and profit shall be prorated to each item so that the total of the prices for all items equal the lump sum price. At the discretion of the Construction Manager, mobilization, bond and insurance costs may be provided for separately if accompanied by invoices to verify actual expenses.
- B. The price breakdown shall be generally in the same format as the Contract specifications divisions and subdivisions, with major items of work listed individually. The price breakdown shall be by structure, civil, landscaping, or other logical division of work. The price breakdown for architectural, structural, mechanical, and electrical work shall include separate items for identifiable portions of the structures. The price breakdown shall include separate allowances for any testing and startup work required. Measurable approximate quantities of work performed by the Contractor or its subcontractors shall be provided. For quantities that are the sum total of several individual quantities, backup summaries shall be provided which list the individual descriptions and quantities. These summaries then will be used to determine the quantities of work in place in subsequent progress payment requests.
- C. The above is a statement of the intent of the Contract Documents to provide a moderate level of detail, acceptable to the Construction Manager, to allow a fair and reasonable estimate to be made of the value of work installed. The detail of the price breakdown must be sufficient to provide timely processing of the monthly progress payment request.
- D. The price breakdown will be subject to the approval of the Construction Manager, and upon request, the Contractor shall substantiate the price for any or all items and provide additional level of detail, including quantities of work. The price breakdown shall be sufficiently detailed to permit its use by the Construction Manager as one of the bases for evaluating requests for payments. The Construction Manager shall be the sole judge of the adequacy of the price breakdown.

END OF SECTION

EXHIBIT "A": BID ITEMS

ITEM NO.	DESCRIPTION AND UNIT PRICES WRITTEN	ESTIMATED QUANTITIES/ UNITS	UNIT PRICE IN FIGURES	ITEM AMOUNT (<i>Est. Qty./Units x Unit Price</i>)
1	Mobilization / Demobilization Unit Price in Words:	1 Lump Sum	\$	\$
2	Demolition and Removal of Existing Navigation Aids Unit Price in Words:	1 Lump Sum	\$	\$
3	Furnish and Install 30" Monopiles Unit Price in Words:	1 Lump Sum	\$	\$
4	Furnish and Install Prefabricated Steel Platform, Ladder and Accessories Unit Price in Words:	1 Lump Sum	\$	\$
	TOTAL BID: ITEMS 1-4: Price in Words:		\$	\$

SECTION 01035

MODIFICATION PROCEDURES

PART 1. GENERAL

1.1 CHANGES IN CONTRACT PRICE

- A. Whenever corrections, alterations, or modifications of the work under this Contract are ordered by the Construction Manager and approved by the Owner and increase the amount of work to be done, such added work shall be known as extra work; and when such corrections, alterations, or modifications decrease the amount of work to be done, such subtracted work shall be known as work omitted.
- B. The difference in cost of the work affected by such change will be added to or deducted from the amount of said Contract price, as the case may be, by a fair and reasonable valuation, which shall be determined in one or more of the following ways as directed by the Construction Manager:
 - 1. By unit prices accepted by the Owner and stated in the Contract Documents;
 - 2. By unit prices subsequently fixed by agreement between the parties;
 - 3. By an acceptable lump sum proposal from the Contractor; or
- C. By Force Account (as described in Paragraph 01035-1.3, Force Account Payment), when directed in writing and administered by the Owner through its agents or representatives.
- D. When required by the Construction Manager, the Contractor shall submit, in the form prescribed by the Construction Manager, an itemized breakdown with supporting data of the quantities and prices used in computing the value of any change that may be ordered.
- E. The Construction Manager will review the Contractor's proposal for the change and negotiate an equitable adjustment with the Contractor. After there is an agreement the Construction Manager will prepare and process the Change Order and make a recommendation for action by the Owner. All Change Orders must be approved by the Owner in writing before the work can be authorized and the Change Order executed.
- F. The prices agreed upon and any agreed upon adjustment in Contract Time shall be incorporated in the written order issued by the Owner, which shall be written so as to indicate an acceptance on the part of the Contractor as evidenced by its signature. By signature of the Change Order, the Contractor acknowledges that the adjustments to cost and time contained in the Change Order are in full satisfaction and accord, payment in full, and so waives any right to claim any further cost and time impacts at any time during and after completion of the Contract for the changes encompassed by the Change Order.

1.2 NEGOTIATED CHANGE ORDERS

- A. Under the methods described in Paragraph 01035-1.1B and 1.1C above, the Contractor shall submit substantiating documentation with an itemized breakdown of Contractor and subcontractor direct costs, including labor, material, equipment rentals, and approved services, pertaining to such ordered work in the form and detail acceptable to the Construction

Manager. The direct costs shall include only the payroll cost for workers and foremen, including wages, fringe benefits as established by negotiated labor agreements or state prevailing wages, workers' compensation and labor insurance, and labor taxes as established by law. No other fixed labor burdens will be considered, unless approved in writing by the Construction Manager; the cost of materials used and equipment delivered and installed in such work as substantiated by appropriate documents; the cost of construction machinery and equipment based on fair rental or ownership values acceptable to the Construction Manager as described in Paragraph 01035-1.3; and the cost of incidentals directly related to such work. The direct costs shall not include any labor or office costs pertaining to the Contractor's managers or superintendents, its office and engineering staff and office facilities, or anyone not directly employed on such work, nor the cost of small tools as all such indirect costs form a part of the Contractor's overhead expense.

B. Under the method described in Paragraph 01035-1.1B and 1.1C the maximum percentage which will be allowed for the Contractor's combined overhead and profit will be:

1. For work by its own organization, the Contractor may add the following percentages:

#	Direct Labor	25 percent
#	Materials	15 percent
#	Equipment (owned or rented)	15 percent

1. For all such work done by subcontractors, such subcontractor may add the same percentages as the Contractor as listed in (1) above to its actual net increase in costs for combined overhead and profit and the Contractor may add up to ten (10) percent of the subcontractor's total for its combined overhead and profit.

2. For all such work done by sub-tier-subcontractors, such sub-subcontractors may add the same percentages as the Contractor as listed in (a) above to its actual net increase in costs for combined overhead and profit, and the subcontractor may add up to ten (10) percent of the sub-subcontractor's total for its combined overhead and profit. The Contractor may add up to five (5) percent of the subcontractor's total for its combined overhead and profit.

3. To the total of the actual costs and fees allowed hereinunder, not more than two (2) percent shall be added for additional bond and insurance other than labor insurance.

4. The above fees represent the maximum limits which will be allowed, and they include the Contractor's and all subcontractors' indirect home office expenses and all costs for cost proposal preparation. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any, for each area of work, i.e. direct labor, materials, equipment, and subcontractors. The amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease and a credit in accordance with the markups allowed under the use of the method described in Paragraph 01035-1.3. The Contractor shall not claim for anticipated profits on work that may be omitted.

1.3 FORCE ACCOUNT PAYMENT

- A. If either the amount of work or payment for a Change Order cannot be determined or agreed upon beforehand, the Owner may direct by written Change Order or Field Order that the work be done on a force account basis. The term "force account" shall be understood to mean that payment for the work will be done on a time and expense basis, that is, on an accounting of the Contractor's forces, materials, equipment, and other items of cost as required and used to do the work. For the work performed, payment will be made for the documented actual cost of the following:
1. Direct labor cost for workers, including foremen, who are directly assigned to the force account work: Direct labor cost is the actual payroll cost, including wages, fringe benefits as established by negotiated labor agreements or state prevailing wages, workers' compensation and labor insurance, and labor taxes as established by law. No other fixed labor burdens will be considered, unless approved in writing by the Owner.
 2. Material delivered and used on the designated work, including sales tax, if paid for by the Contractor or its subcontractor.
 3. Equipment rental, including necessary transportation for items having a value in excess of One Thousand Dollars (\$1,000.00).
 4. Additional bond.
 5. Additional insurance, other than labor insurance.
- B. To the preceding costs, there shall be added the following fees for the Contractor, subcontractor, or sub-subcontractor actually performing the work:
1. A fixed fee not to exceed fifteen (15) percent of the costs of Items a, b, and c above.
 2. To the total of the actual costs and fees allowed hereunder, not more than two (2) percent shall be added for additional bond and insurance as the cost of Items d and e above.
- C. For work performed by an approved subcontractor, the Contractor may add to the total of the actual costs and fixed fees allowed under the preceding paragraph an additional fixed fee of five (5) percent of said total. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.
- D. For work performed by a sub-tier-subcontractor, the subcontractor may add to the total of the actual costs and fixed fees allowed under the preceding paragraph an additional fixed fee of five (5) percent of said total. No further compensation will be allowed for the subcontractor's administration of the work performed by the sub-tier-subcontractor. The Contractor may add to the total of the actual costs and fixed fees allowed under this paragraph an additional fixed fee of five (5) percent of said total. No further compensation will be allowed for the Contractor's administration of the work performed by the subcontractor.
- E. The added fixed fees shall be considered to be full compensation, covering the cost of general supervision, overhead, profit, and any other general expense. The above fixed fees represent the maximum limits which will be allowed, and they include the Contractor's and all

subcontractors' indirect home office expenses and all costs for cost proposal preparation and record keeping.

- F. The Owner reserves the right to furnish such materials and equipment as it deems expedient, and the Contractor shall have no claim for profit or added fees on the cost of such materials and equipment.
- G. For equipment under Item c above, rental or equivalent rental cost will be allowed for only those days or hours during which the equipment is in actual use. Payment shall be based on actual rental and transportation invoices but shall not exceed the monthly rate in the Rental Rate Blue Book. Owner-operated equipment rates shall not exceed the monthly rate in the Rental Rate Blue Book plus the labor costs as provided in Item a. above. The rental cost allowed for equipment will, in all cases, be understood to cover all fuel, supplies, repairs, ownership, and incidental costs and no further allowances will be made for those items, unless specific agreement to that effect is made. For Contractor owned equipment, costs shall be based on either actual cost accounting records or the monthly rates in the Contractor's Equipment Cost Guide published by "Data Quest". Hourly rates shall be determined by dividing the monthly rate by 176 hours.
- H. Prior to the commencement of force account work, the Contractor shall notify the Construction Manager of its intent to begin work. Labor, equipment and materials furnished on force account work shall be recorded daily by the Contractor upon report sheets furnished by the Construction Manager to the Contractor. The reports, if found to be correct, shall be signed by both the Contractor and Construction Manager, or inspector, and a copy of which shall be furnished to the Construction Manager no later than the working day following the performance of said work. The daily report sheet shall thereafter be considered the true record of force account work provided. If the Construction Manager, or inspector, do not agree with the labor, equipment and/or materials listed on the Contractor's daily force account report, the Contractor and Construction Manager, or inspector, shall sign-off on the items on which they are in agreement. The Construction Manager shall then review the items of disagreement and will advise the Contractor, in writing, of its determination. If the Contractor disagrees with this determination, it shall have the right to file a claim notice as provided in the General Conditions.
- I. The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of work paid for on a force account basis and the costs of other operations.
- J. To receive partial payments and final payment for force account work, the Contractor shall submit, in a manner approved by the Construction Manager, detailed and complete documented verification of the Contractor's and any of its subcontractor's actual costs involved in the force account pursuant to the pertinent Change Order or Field Order. Such costs shall be submitted within thirty (30) days after said work has been performed. No payments will be made for work billed and submitted to the Construction Manager after the thirty (30) day period has expired.
- K. The force account invoice shall itemize the materials used and shall cover the direct costs of labor and the charges for equipment rental, whether furnished by the Contractor, subcontractor, or other forces. The invoice shall be in a form acceptable to the Construction Manager and shall provide names or identifications and classifications of workers, the hourly

rate of pay and hours worked, and also the size, type, and identification number of equipment and hours operated. Material charges shall be substantiated by valid copies of vendor's invoices.

- L. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any. The amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease and a credit in accordance with the markups allowed under the use of the method described in this Section. The Contractor shall not claim for anticipated profits on work that may be omitted.

1.4 TIME EXTENSIONS FOR CHANGE ORDERS

- A. If the Contractor requests a time extension for the extra work necessitated by a proposed Change Order, the request must comply with the applicable requirements of Paragraph 01310-6.1.

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1. GENERAL

1.1 DATUM

- A. Where applicable, elevation datum for this Project is based on the Project datum shown on the Drawings. All connections shall be installed based on actual elevations of existing structures to which connections are made.

1.2 LINES AND GRADES

- A. The Contractor shall lay out all work, including structures and pipelines, and shall be responsible for any errors resulting therefrom. In all questions arising as to proper location of lines and grades, the Construction Manager's decision will be final.
- B. As part of the bid price for the construction of the improvements the Contractor shall provide and be responsible for the layout of all work on this project. The Contractor shall provide all necessary surveys, field staking, and positioning for the construction of all components at the proper alignment, elevations, grades, and positions, as indicated on the Drawings and as required for the proper operation and function. The Contractor shall stake the work limits.
- C. The Contractor's layout shall be based on existing structures, survey control and bench marks established by the Owner.
- D. The Contractor shall supply such labor as required, at no extra charge, to aid and assist the Construction Manager in checking location and grades of the work as set by the Contractor, if requested by the Construction Manager. This shall include moving materials and equipment located between monuments and the construction work.

END OF SECTION

SECTION 01090

REFERENCES

PART 1. GENERAL

1.1 DEFINITIONS

- A. Unless otherwise stated, the words directed, required, permitted, ordered, instructed, designated, applicable, appropriate, sufficient, proper, desirable, necessary, prescribed, approved, acceptable, satisfactory or words of like import, refer to actions, expressions, and prerogatives of the Owner, Design Consultant, or Construction Manager.
- B. Masculine gender words include the feminine. References to gender, such as "workman" and "flagman" and the pronouns "he" or "his" referring to such titles, are abstract in the specifications, used for the sake of brevity are intended to refer to persons of either sex.
- C. Singular words include the plural and "person" includes firms, companies, and corporations.
- D. Where used in the Contract Documents, the following words and terms shall have the meanings indicated. The meanings shall be applicable to the singular, plural, masculine, and feminine of the words and terms.

Acceptance - The formal written acceptance by the Owner of an entire Contract which has been completed in all respects in accordance with the Contract Documents and any modifications thereof previously approved.

Act of God - An earthquake, flood, cyclone, or other cataclysmic phenomenon of nature. A rain, windstorm, high water, or other natural phenomenon, which might reasonably have been anticipated from historical records of the general locality of the work, shall not be construed as an Act of God.

Addenda - Written or graphic instruments issued prior to the bid which modify or interpret the Contract Documents, drawings, and specifications, by additions, deletions, clarifications, or corrections.

Agreement - The written document covering the performance of the Work as more fully described in the Contract Documents.

Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the price for the work to be performed.

Bidder - Any properly licensed and qualified individual, firm, partnership, corporation, joint venture, or combination thereof, submitting a proposal for the work contemplated, acting directly or through a duly authorized representative.

Bond(s) - Bid, Performance, or Payment Bonds and other instruments of surety, furnished by the Contractor and Contractor's surety in accordance with the Contract Documents.

Calendar Day - Any day including legal holidays, Saturdays and Sundays.

Construction Manager - The person designated, in writing, by the Owner to act as its representative at the construction site and to perform construction inspection services and administrative functions relating to this Contract. Initial contact by the Contractor with the Owner shall be through the Construction Manager.

Contract Change Order - A written order to the Contractor, covering changes in the plans or quantities, or both, and establishing the basis of payment and time adjustments for the work affected by the changes. Also referred to as a Change Order.

Contract Documents - The words "Contract Documents" shall mean any or all of, but not limited to, the following items, as applicable:

1. Invitation to Bid
2. Instructions to Bidders
3. Bid Documents
4. Designation of Subcontractors
5. Bid Guaranty Bond
6. Agreement
7. Acknowledgements
8. Performance Bond
9. Payment Bond
10. General Conditions
11. Supplementary Conditions
12. General Requirements
13. Standard Specifications
14. Technical Specifications Drawings
15. Addenda, if any
16. Executed Change Orders, if any
17. Notice of Award
18. Notice to Proceed
19. Each of these items is to be considered by reference as part of the Contract Documents, also referred to as Contract.

Contract Price - The amount payable to the Contractor under the terms and conditions of the Contract based on the price given on the bidding schedule, with adjustments made in

accordance with the Contract. The base amount given in the bidding schedule shall be either a lump sum bid or the summation of the unit price bids multiplied by the estimated quantities set forth in the bid form. Also referred to as Contract Amount or Contract Sum.

Contract Time - Number of calendar days stated in the Contract for the completion of the Work.

Contract Completion Date - The date on which the Owner accepts the work as being complete.

Contractor - The person or persons, firms, partnership, corporation, or combination thereof, who have entered with the Owner, as party or parties of the second part of its or their legal representatives.

Contractor's Plant and Equipment - Equipment, material, supplies, and all other items, except labor, brought onto the site by the Contractor to carry out the Work, but not to be incorporated in the Work.

Day(s) - Calendar Day(s).

Direct - Action of the Owner or Construction Manager by which the Contractor is ordered to perform or refrain from performing work under the Contract.

Drawings - Refers to the Contract drawings, profiles, cross sections, elevations, details, and other working drawings and supplementary drawings, or reproductions thereof, signed by the Design Consultant, approved by the Owner, and are referred to in the Contract Documents, which show the location, character, dimensions, and details of the work to be performed. The terms drawing, plan and plans have the same meaning as the term drawings unless otherwise stated or specified.

Design Consultant - The engineer or architect designated by the Owner to have design control over the Work or a specified portion of the Work, acting either directly or through duly authorized representatives. Such representatives shall act within the scope of the particular duties delegated to them.

Field Directive - Written documentation of the actions of the Owner or Construction Manager in directing the Contractor. Also referred to as a Directive.

Field Order - A written instruction given to the Contractor authorizing work that is a change to the scope of work carried out on a time and material basis.

Float - Float or "total float" shall be defined as provided in the Associated General Contractors of America "CPM in Construction, A Manual for General Contractors".

Furnish - To deliver to the job site or other specified location any item, equipment, or material.

General Conditions - Part of the Contract Documents representing the general clauses that establishes how the project is to be administered.

General Requirements - Part of the Contract Documents establishing special conditions or requirements peculiar to the work and supplementary to the General Conditions.

Herein - Refers to information presented in the Project Manual.

Holidays - Legal holidays designated by the Owner or specifically identified in the Contract.

Install - Placing, erecting, or constructing any item, equipment, or material.

Laboratory - The designated materials testing laboratory authorized by the Owner to test materials and work involved in the Contract.

Liquidated Damages - The amount prescribed in Paragraph 00700-6.5, Liquidated Damages, and Paragraph 00810-3.0, DAMAGES FOR DELAYS, to be paid to the Owner or to be deducted from any payments due or to become due the Contractor for each day's delay in completing the whole or any specified portion of the Work beyond the time allowed in the specifications.

Notice of Award - A written notice by the Owner to the Contractor informing it that the Contract has been awarded to the Contractor.

Notice to Proceed - The written notice by the Owner to the Contractor authorizing the Contractor to proceed with the Work and establishing the date of commencement of the Work.

Owner - A public or quasi-public agency or authority, corporation, association, partnership, or individual for whom the work is to be performed. Under this contract, the Owner is identified by name in the agreement.

Owner's Representative - The person designated in writing by the Owner to act as its agent on specified matters relating to this Contract. The Owner's Representative is not the Construction Manager, but an employee of the Owner or other individual who has been designated to represent the Owner.

Paragraph - For references or citation purposes, refers to the paragraph(s), called out by paragraph number and alphanumeric designator.

Person - Includes firms, companies, corporations, partnerships, and joint ventures.

Project - The undertaking to be performed under the provisions of the Contract.

Project Manual - Those Contract Documents which are bound into one or more volumes prior to bidding.

Provide - Furnish and install, complete in place.

Punch List - List of incomplete items of work and of items of work which are not in conformance with the Contract.

Shall - Refers to actions by either the Contractor or the Owner and means the Contractor or Owner has entered into a covenant with the other party to do or perform the action.

Shown - Refers to information presented on the Drawings, with or without reference to the Drawings.

Site - The property as described in the General Conditions or as shown on the Drawings.

Specifications - That part of the Contract Documents consisting of the General Conditions, Supplementary Conditions, General Requirements, applicable State Standard Specifications, and Technical Specifications.

Specify - Refers to information described, shown, noted or presented in any manner in any part of the Contract.

State of California Specifications - The State of California Department of Transportation Standard Specifications in effect at the time of advertising the Work. Also referred to as State Standard Specifications and Caltrans Standard Specifications.

Subcontractor - A subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the Work at the Site. The term subcontractor means a subcontractor or subcontractor's authorized representative. The term subcontractor, does not include any separate contractor or any separate contractor's subcontractors.

Submittals - The information which is specified for submission to the Construction Manager in accordance with the Project Manual.

Substantial Completion - Substantial Completion is the stage in the progress of the Work when the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

Sub-subcontractor - A sub-subcontractor is a person or entity who has a direct or indirect contract with a subcontractor to perform any of the Work at the Site. The term sub-subcontractor means a sub-subcontractor or an authorized representative thereof.

Supplier - Any person, firm, corporation, or organization who supplies materials or equipment for the Work, including that fabricated to a special design, and may also be a Subcontractor or a Sub-subcontractor.

Surety - The person, firm, corporation, or organization that joins with the Contractor in assuming the liability for the faithful performance of the Work and for the payment of all obligations pertaining to the Work in accordance with the Contract Documents by issuing the Bonds required by the Contract Documents or by law.

Will - Actions entered into by the Contractor or the Owner as a covenant with the other party to do or to perform the action.

Work - The labor, materials, equipment, supplies, and other items necessary for the execution, completion, and fulfillment of the Contract.

Working Day - Any day, other than a holiday, Saturday or Sunday, on which the Contractor may proceed with regular work on the current controlling operation as determined by the Construction Manager toward the completion of the Contract. A working day is equivalent to 1.45 calendar days.

1.2 ABBREVIATIONS

- A. Whenever the following terms are used, the intent and meaning shall be as follows:

B. Abbreviations Stands For

AASHTO	American Association of State and Highway and Transportation Officials
AAMA	Architectural Aluminum Manufacturers Association
ABMA	American Boiler Manufacturers Association
ACI	American Concrete Institute
ADC	Air Diffusion Council
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMCA	Air Moving and Conditioning Association
ANSI	American National Standard Institute (formerly United States of America Standards Institute)
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Construction Managers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWPA	American Wood-Preserver's Association
AWS	American Welding Society
AWWA	American Water Works Association
CAGI	Compressed Air and Gas Institute
CAL/OSHA Safety	State of California Department of Industrial Relations, Division of Industrial Safety
CBM	Certified Ballast Manufacturers

CBR	California Bearing Ratio
CI	Chlorine Institute
CISPI	Cast Iron Soil Pipe Institute
CMAA	Crane Manufacturers Association of America CPSC Consumer Products Safety Commission
CRA	California Redwood Association
CRSI	Concrete Reinforcing Steel Institute
CTI	Cooling Tower Institute
DFPA	Douglas Fir Plywood Association
EIA	Electronic Industries Association
EPA	U.S. Environmental Protection Agency
ESF	Essential Service Facility
ETL	Electronic Testing Laboratory
FM	Factory Mutual Insurance Company
FPS	Fluid Power Society
FS	Federal Specifications
GO 95	General Order No. 95, California Public Utilities Commission Rules for Overhead Electric Line Construction
HI	Hydraulic Institute
HMI	Hoist Manufacturers Institute
IAPMO	International Association of Plumbing and Mechanical Officials
IBR	Institute of Boiler and Radiator Manufacturers
ICBO	International Conference of Building Officials
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IPCE	International Power Cable Engineers Association
ISA	Instrument Society of America
NAAMM	National Association of Architectural Metal Manufacturers

NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
NWMA	National Woodwork Manufacturers Association
OSHA	Occupational Safety and Health Act
PCMAC	Prestressed Concrete Manufacturers Association of California
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSPC	Structural Steel Painting Council
TCA	Tile Council of America
UBC	Uniform Building Code
UPC	Uniform Plumbing Code
UL	Underwriters Laboratories
WCLIB California	West Coast Lumber Inspection Bureau WIC Woodwork Institute of

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1. GENERAL

1.1 PRE-CONSTRUCTION CONFERENCE

- A. The Construction Manager will schedule a pre-construction conference and organizational meeting at the project site or other convenient location upon award and/or execution of the Contract and prior to commencement of construction activities.
1. Attendees - The Owner, Design Consultant, Contractor and its superintendent, invited subcontractors, and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the work.
 2. Agenda - The Construction Manager will prepare an agenda for discussion of significant items relative to contract requirements, procedures, coordination and construction.

1.2 PROGRESS MEETINGS

- A. The Construction Manager will conduct weekly progress meetings at the project site. Meeting minutes will be taken by the Construction Manager and distributed accordingly.
1. Attendees - The Owner, Design Consultant, Construction Manager, Contractor, and its Superintendent shall each be represented at these meetings. Attendance by subcontractors, suppliers and other entities is subject to issues and/or items of the agenda which may, or may not, require attendance.
 2. Agenda - Review, correct or approve minutes of the previous progress meeting. Review items of significance that could affect progress. Review/discuss topics as appropriate to the current and future status and/or needs of the project. Review the progress of the work in the preceding week and in the subsequent week, coordinate the work with public agencies or other Contractors as required, and allow the Construction Manager to plan its activities for testing, inspection, etc.

1.3 CONFERENCES

- A. At any time during progress of the Work, the Owner and the Construction Manager shall have the authority to require the Contractor and any subcontractor, suppliers, or service providers to attend job-site conferences. Any notice of such conference shall be duly observed and complied with by the Contractor and subcontractors, suppliers, or service providers.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1. GENERAL

1.1 SUBMITTALS

- A. Where the Contractor is required by these Specifications to make submittals, they shall be made according to General Requirements Section 01340, SHOPDRAWINGS, PRODUCT DATA AND SAMPLES.
- B. The Contractor shall provide electronic copies and/or sufficient number of hard copies to be retained by the Construction Manager, the Engineer, and the Contractor of the following items:
 - 1. Designation of Contractor's Representative
 - 2. Cost Breakdown
 - 3. Construction Schedule
 - 4. Materials List
 - 5. Substitutions List
 - 6. Shop Drawings
 - 7. Material Safety Data Sheets
 - 8. Operation and Maintenance Manuals
 - 9. Requests and Notices
 - 10. Manuals and Instructions
 - 11. Manufacturer's Affidavits
 - 12. Affidavits on Patent Fees
 - 13. Affidavit of Bills Paid
 - 14. Warranty Data
 - 15. Others as Specified in the Technical Specifications
- C. Where the Contractor is required by these Specifications to submit samples of products, the Contractor shall provide a sufficient number of physical samples to allow three (3) to be retained by the Construction Manager of all structural and architectural products involving color, finish, texture, or the like.

1.2 MATERIALS LIST

- A. Within seven (7) days after the Notice to Proceed, the Contractor shall submit a List of Materials to the Construction Manager for review. The List shall include all items of equipment

and materials for mechanical, piping, architecture, electrical, heating and ventilating, equipment piping, and plumbing work; and the names of manufacturers with whom purchase orders have been or will be placed. Items on the List shall be arranged in the same order as in these Specifications and shall contain sufficient data to identify precisely the items of material and equipment the Contractor proposes to furnish. The List shall include the Specifications or Drawing references. After the submission is favorably reviewed and returned to the Contractor by the Construction Manager, it shall become the basis for the submission of detailed manufacturer's drawings, catalog cuts, curves, diagrams, schematics, data, and information on each separate item for review as set forth in Section 01340. The favorable review of shop drawings shall be obtained prior to the fabrication, delivery and construction of items requiring shop drawing submittal. Approval of the shop drawings by the architect shall not relieve the Contractor of compliance with the Contract Documents.

END OF SECTION

SECTION 01305

PROJECT MANAGEMENT AND COORDINATION

PART 1. GENERAL

1.1 SUMMARY

- A. Section includes description of project management and coordination including but not necessarily limited to the following:
 - 1. General Project coordination procedures.
 - 2. Coordination drawings.
 - 3. Staff names.
 - 4. Administrative and supervisory personnel.
 - 5. Project meetings.

1.2 COORDINATION

- A. Contractor must coordinate the construction operations contained in various sections of the Technical Specifications contained elsewhere in these Contract Documents to ensure the efficient and orderly installation of each aspect of the Work. Contractor shall:
- B. Coordinate construction operations that depend on each other for proper demolition, installation, connection, and operation.
- C. Coordinate work to assure the efficient and orderly sequence of construction elements and activities.
- D. Make provisions for accommodating items installed by THE DISTRICT or under separate contracts.
- E. Coordinate Work with other related projects to ensure compatibility of both projects.
- F. Verify that interrelated operating systems and equipment are compatible; coordinate work having interdependent responsibilities for installing, connection to, and placing such equipment in service.
- G. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Contract Drawings.
 - 1. Follow routing shown for pipes, ducts, and conduits as closely as possible; make runs parallel with lines of structures.
 - 2. Utilize space efficiently to maximize accessibility for other installations, maintenance, and repairs.
- H. Conceal pipes, ducts, and wiring unless otherwise indicated; coordinate locations of fixtures and outlets with finish elements.

- I. Coordinate scheduling and timing of administrative procedures with other construction activities and activities of other contractors to avoid conflicts and ensure orderly progress of the Work.

1.3 PRINCIPAL STAFF LIST

- A. Immediately after receipt of THE DISTRICT's Notice to Proceed, Contractor shall submit to THE DISTRICT a complete list of its principal staff, including in such list the positions subject to pre-approved by THE DISTRICT as set forth in the General Conditions of these Contract Documents. Contractor shall include the contact number for each principal staff assignment, including phone number and email address.

1.4 SUPERVISORY AND ADMINISTRATIVE PERSONNEL

- A. In addition to retaining a project superintendent, Contractor shall provide supervisory personnel necessary for the proper and timely performance of Work and coordination of subcontracts.
- B. Contractor shall provide administrative staff as may be required to allow Contractor's project supervisor and any other supervisory personnel to maximize time dedicated to project supervision and coordination.

1.5 PROJECT MEETINGS

- A. Contractor shall schedule and administer project meetings throughout progress of the Work. The project meeting schedule shall provide for at least the following:
 1. Pre-construction meeting.
 2. Progress meetings at weekly intervals.
 3. Pre-installation conferences.
 4. Coordination meetings.
 5. Special meetings.
- B. Contractor shall: make physical arrangements for meetings; prepare agenda with copies for participants; preside at meetings; record minutes and distribute copies within two days to Owner's Designated Representative, THE DISTRICT, participants, and those affected.
- C. Attendance shall include: Job superintendent, major Subcontractors and Suppliers as are appropriate to the meeting agenda; as well as the Owner's Designated Representative, THE DISTRICT, and consultants as are appropriate to the meeting agenda for each meeting.
- D. Suggested Progress Meetings agenda items include: review of the progress of the Work; status of Construction Schedule and adjustments, delivery schedules and Submittals; Requests for Information; maintenance of quality standards; pending changes and substitutions; safety and other issues needing resolution.

END OF SECTION

SECTION 01310

PROGRESS SCHEDULES

PART 1. GENERAL

1.1 PROCEDURES

- A. The Contractor shall provide with its schedule a procedural outline of the system shutdowns and proposed tie-in procedures, which shall be subject to the favorable review of the Construction Manager and the Owner.

PART 2. NOT USED

PART 3. EXECUTION

3.1 CONSTRUCTION SCHEDULE

- A. The Progress Schedule for this Project will also be referred to as the critical path method (CPM) Schedule.
- B. The Contractor shall designate, in writing, an authorized representative in its firm who will be responsible for the preparation, revising, and updating of the CPM Schedule. The Contractor's representative shall have direct project control and complete authority to act on behalf of the Contractor in fulfilling the construction scheduling requirements set forth herein, and such authority will not be interrupted throughout the duration of the Project. The requirements for the CPM Schedule are included to assure adequate planning and execution of the work and to assist the Construction Manager in appraising the reasonableness of the proposed schedule and evaluating progress of the work.
- C. Within ten (10) days from award of the Contract, the Contractor shall submit to the Construction Manager demonstration of competence in the use of CPM Scheduling, including evidence of the use of CPM Scheduling on a project of similar value and complexity. In the event of the failure of the Contractor to satisfy the Construction Manager of its CPM Scheduling competence, the Contractor will be required to employ a qualified CPM consultant who regularly performs these services and who in the opinion of the Construction Manager possesses the qualifications required to perform CPM Scheduling for this Project.
- D. Demonstration of competence in the use of CPM Scheduling shall be indicated by providing evidence to verify capability of using the CPM of construction by submitting: (1) Information regarding at least two construction projects, complete with description of the work, valued at least equal to the expected value of this Project, which were successfully controlled by the Contractor or its CPM consultant throughout their duration by means of CPM Scheduling and periodic systematic reviews of the CPM Schedules; (2) The Contractor's or its CPM Consultant's experience in the application of CPM Scheduling techniques for construction projects of similar size and complexity; (3) The Contractor's or its CPM consultant's library of computer programs for production of CPM Schedules; and (4) Information regarding the Contractor's or its CPM consultant's computer facilities (either by possession or contractual access).

3.2 PRELIMINARY PROGRESS SCHEDULE

- A. Within ten (10) days after receipt of Notice to Proceed, the Contractor shall submit two (2) copies of a Preliminary Progress Schedule in the form of an arrow or precedence diagram covering the following project phases and activities:
1. Procurement and Submittals, including shop drawings and fabrication and delivery of key and long lead time procurement activities.
 - a. The Contractor's submittal information shall show intended submittal dates and shall be incorporated into the base project schedule.
 - b. The delivery information shall include realistic delivery dates for the procurement activities.
 2. The activities planned for the first 90 days in the execution of the Work.
 3. The approach to scheduling the remaining activities or phases of the Work. The Work for each phase or activity shall be represented by at least one summary activity and the sum of the summary activities shall equal the Contract Time.
 4. Approximate duration for each summary activity representing the Contractor's best estimate for the work the summary activity represents.
- B. The Preliminary Progress Schedule shall describe the activities to be accomplished and their dependency subject to all requirements under these Construction Schedule provisions, as appropriate. The Preliminary Progress Schedule will be used temporarily to record and monitor the progress of the Work until the Base Schedule specified hereinafter, has been completely developed and approved. Recorded data on the Preliminary Progress Schedule shall be incorporated into the Base Schedule during the first schedule update.
- C. The Construction Manager shall review the schedule and provide any comments, its favorable review of the schedule, or request a meeting to review the schedule with the Contractor within ten (10) days of receipt of the schedule. If requested, the Contractor shall participate in a review and evaluation of the schedule with the Construction Manager. Any revisions necessary as a result of this review shall be resubmitted for review by the Construction Manager within five (5) days.

3.3 BASE SCHEDULE

- A. **Base Schedule Submittal** - The Contractor shall submit an acceptable Critical Path Method (CPM) Schedule to the Construction Manager within fifteen (15) days after the receipt of the Notice to Proceed.
- B. Subsequent revisions to said schedule shall be submitted as set forth hereinafter.
- C. The Construction Manager shall review the schedule and provide any comments, its favorable review of the schedule, or request a meeting to review the schedule with the Contractor within ten (10) days of receipt of the schedule. If requested, the Contractor shall participate in a review and evaluation of the proposed network diagrams and analysis by the Construction Manager. Any revisions necessary as a result of this review shall be resubmitted for review by the Construction Manager within ten (10) days. When completed, the favorably reviewed

schedule shall then be the schedule to be used by the Contractor for planning, organizing, and directing the work, and for reporting progress. If the Contractor thereafter desires to make significant changes in its method of operating and scheduling, the Contractor shall notify the Construction Manager in writing stating the reasons for the change. Only one progress payment will be made prior to submission and acceptance of the CPM Schedule. Neither the Contractor nor the Owner shall own the "float".

- D. To the extent that the favorably reviewed initial Construction Schedule, or revisions thereto, indicate anything not jointly agreed upon, it shall be deemed to be not favorably reviewed by the Construction Manager. Any omission of work from the detailed schedule, otherwise required for Contract compliance, will not excuse the Contractor from completing such work within any applicable completion date nor relieve Contractor from timely completion of the Project.
- E. **Network Diagram** - The diagrams shall show elements of the project in detail and an entire project summary. Diagrams shall show the order and interdependence of activities and sequence in which the work is to be accomplished as planned by the Contractor. The basic concept of a network analysis diagram shall be followed to show how the start of a given activity is dependent on the completion of preceding activities and its completion restricts the start of following activities. Summary networks shall be time- scaled.
- F. The graphic network diagram shall include for each activity, the description, activity number, the estimated duration in workdays, and all activity relationship lines. The network diagram shall be drawn for the early start of all activities.
- G. **Mathematical Analysis** - The mathematical analysis of the network diagram shall include a tabulation of each activity. The following information shall be furnished as a minimum for each activity;
 - 1. preceding and succeeding event numbers
 - 2. activity (or I-J) description and number
 - 3. estimated duration of activities
 - 4. earliest start date (by calendar date)
 - 5. earliest finish date (by calendar date)
 - 6. actual start date (by calendar date)
 - 7. actual finish date (by calendar date)
 - 8. latest start date (by calendar date)
 - 9. latest finish date (by calendar date)
 - 10. slack or float
 - 11. percentage of activity completed
 - 12. activity constraints

- H. If the precedence technique is utilized, the schedule report shall include a calendar in workdays, a network report sorted by early start, a network report sorted by total float, and a logic table report sorted by work item which indicates the complete preceding and succeeding logic ties. If the arrow technique is utilized, the schedule report shall include a calendar in workdays, a network report sorted by early start, a network report sorted by I-J numbers, and a network report sorted by float time and I-J numbers.
- I. **Durations** - Durations shall be in working days and shall not exceed fifteen (15) workdays, except for submittal and delivery items. Where the duration of continuous work exceeds fifteen (15) workdays, work items in the Construction Schedule shall be subdivided by location, approximate stationing or other sub-element of the work.
- J. **Network Activities** - Detailed network activities shall include:
1. The submittal and approval of samples and equipment, fabrication of special material and equipment and their installation and testing.
 2. The critical path shall be shown on all reports and on the graphic network diagram. The activities which constitute the critical path shall be identified.
 3. System shutdown and tie-in dates must be identified and included on the schedule as milestones.
 4. The activity numbers shall be grouped by work area to provide logical summary activities.
 5. All activities of the Owner and the Construction Manager that affect progress and required contract dates for completion of all parts of the work. The selection and number of activities shall be subject to favorable review by the Construction Manager.

PART 4. CONDITIONS

4.1 WEATHER CONDITIONS

- A. Seasonal weather conditions shall be considered in the planning and scheduling of work influenced by high or low ambient temperatures or precipitation to ensure the completion of the Work within the Contract Time. No time extensions will be granted for the Contractor's failure to take into account such weather conditions for the location of the Work and for the period of time in which the Work is to be accomplished.
- B. The expected loss of working days shall be included in a separate identifiable critical activity labeled "Weather Days Allowance" to be included at the end of the project schedule. When weather days are experienced, and are approved as such by the Construction Manager, the Contractor shall either:
1. Increase the duration of the current critical activity(ies) by the number of weather days experienced, or
 2. Add a critical activity to the schedule to reflect the occurrence of the weather day(s).
- C. The duration of the weather day allowance activity shall be reduced as weather days are experienced and included in the schedule. Any remaining weather days in the weather day

allowance activity at the completion of the project shall be considered as float and shall not be for the exclusive use or benefit of either the Owner or Contractor.

PART 5. UPDATES

5.1 SUBMITTAL PERIOD

- A. The Contractor shall submit at monthly intervals a report of the actual construction progress. Each monthly report shall cover a period of approximately thirty (30) days ending around the 30th of each month. The monthly reports shall be submitted within ten (10) days of the end of the reporting period.
- B. All Monthly Updates - All monthly updates shall include as a minimum:
 - 1. Tabulation reports for the following sorts:
 - a. I-J [or Activity] Numbers
 - b. Total Float
 - c. Early Start
 - d. Logic report of proceeding and succeeding activities with all restraints indicated (precedence schedules only)
 - 2. Narrative Report - The report shall show the activities or portions of activities completed during the reporting period. The report shall state the percentage of the work actually completed and scheduled, the remaining duration, and the progress along the critical path in terms of days ahead or behind the allowable dates as of the report date. Any changes made by the Contractor to the schedule, including I-J (or Activity) numbers and activity descriptions, shall be listed.
- C. On-Schedule Updates - If the project is proceeding on schedule, the monthly update report may consist of a marked-up copy of the graphical network diagram. This submittal shall clearly indicate the status of any minor shifts in sequence or schedule and the estimated completion date or percent complete of all activities currently in progress. The Contract completion date shall also be indicated. The Contractor shall submit a narrative report relating to status of construction, the schedule, and factors which may affect the remainder of the schedule.
- D. Delayed Schedule Updates - If, in the opinion of the Construction Manager, the project is behind schedule, the monthly report shall include a revised network diagram and/or mathematical analysis showing the Contractor's proposed revised schedule. The schedule shall be revised under the conditions defined in Paragraph 01310-5.3, Schedule Revisions. An analysis of the effect that the delay has on progress along other paths shall also be included in the report. The Contractor shall also submit a narrative report with each updated analysis which shall include but not be limited to a description of current and anticipated problem areas, delaying factors and their impact, and an explanation of corrective actions taken or proposed.

5.2 SCHEDULE REVIEW

- A. Once each month, on a date mutually agreed upon, but no later than seven (7) working days after the submittal of the monthly update specified herein, a jobsite meeting will be held to review the Construction Schedule, job progress and the monthly update, or the Construction Manager will provide written comments on the monthly update.

5.3 SCHEDULE REVISIONS

- A. The conditions under which the Construction Manager will require revisions of the Construction Schedule include the following:
 - 1. When delay in completion of any work item or sequence of work items results in an estimated extension of project completion by either twenty (20) working days or by five percent (5%) of the remaining duration of time to complete the Contract, whichever is less.
 - 2. When delays in submittals or deliveries make replanning or rescheduling of the work necessary.
 - 3. When the schedule does not represent actual prosecution and progress of the work.
 - 4. When any change to the sequence of activities, the completion date for major portions of the work, or changes occur which affect the critical path.
 - 5. When Contract modification necessitates schedule revision.

PART 6. TIME IMPACT ANALYSES

6.1 CHANGE ORDER IMPACTS

- A. When change orders are initiated, delays are experienced, or the Contractor desires to revise the schedule logic, the Contractor shall submit to the Construction Manager a written Time Impact Analysis illustrating the influence of each change, delay, or Contractor request on the current contract schedule completion date.
- B. Construction Schedule - Analysis
 - 1. Each Time Impact Analysis shall include a fragmentary network analysis demonstrating how the Contractor proposes to incorporate the change order, delay, or Contractor request into the Schedule.
 - 2. The analysis shall demonstrate the time impact based on the date of occurrence of the change, delay or revision; the status of construction at that point in time; and the event time computation of all affected activities.
 - 3. The event times used in the analysis shall be those included in the latest updated copy of the Construction Schedule or as adjusted by mutual agreement between the Construction Manager and Contractor.

6.2 DELAYS

- A. Activity time delays will not automatically mean that an extension of Contract Time is warranted or due the Contractor.

- B. It is possible that a strike or contract modification will not affect existing critical activities or cause noncritical activities to become critical, i.e., a strike or modification may result in only absorbing a part of the available total float that may exist within an activity chain of the network, thereby not causing any effect on the Contract completion date or time.
- C. The Contractor acknowledges and agrees that mitigation for delays due to changes, differing site conditions, and other causes will require revision of preferential sequences of the Work before proposing an updated schedule which supports a delay to the Project as a whole. When a delay to the Project as a whole can be avoided by revising preferential sequencing, and the Contractor chooses not to implement the revisions, the Contractor will be entitled to a time extension but is not entitled to compensation for indirect overhead.
- D. Float or slack shall not be for the exclusive use or benefit of the Owner or the Contractor. Extensions of time for performance will be granted only to the extent that the equitable time adjustments for the activity or activities affected exceeds the total float along the activity chain involved at the time the change was ordered or the delay occurred.
- E. The definitions of "noncritical activities" and "total float" shall be as provided in the Associated General Contractors of America book "CPM in Construction, A Manual for General Contractors."

6.3 TIME IMPACT ANALYSIS

- A. Time Impact Analyses shall be submitted in triplicate and within fifteen (15) days after a delay occurs or with the Contractor's cost proposal in response to a notice of change from the Construction Manager. In cases where the Contractor does not submit a Time Impact Analysis for a specific change order, delay, or Contractor request within the specified period of time, then it is mutually agreed that the particular change order, delay, or Contractor request has no time impact on the Contract completion date and no time extension is required.
- B. Approval or rejection of Time Impact Analyses by the Construction Manager and the Owner will be made within fifteen (15) days after receipt of the Time Impact Analysis unless subsequent meetings and negotiations are necessary.
- C. Upon approval, a copy of the Time Impact Analysis signed by the Construction Manager and Owner will be returned to the Contractor.
- D. Upon mutual agreement by both parties, schedule revisions illustrating the influence of change orders, delays, and/or Contractor requests will be incorporated into the next schedule update.

PART 7. ACTIVITY PLANS

7.1 WEEKLY ACTIVITIES PLAN

- A. On the last working day of every week the Contractor shall submit to the Construction Manager the Contractor's Plan of Activities for the following three weeks. The Plan of Activities shall describe the activity and location of the activity and include the activity's I-J or Activity number as provided in the Construction Schedule.

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1. GENERAL

1.1 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall submit, at its own expense submittals and details of structural and reinforcing steel, equipment, material, electrical controls, architectural fabrications, pipe, pipe joints, special pipe sections, and other appurtenances as required in technical specifications.
- B. All submittals and supporting data, catalogs, schedules, etc., shall be submitted as the instruments of the Contractor, who shall be responsible for their accuracy and completeness and coordination. Such responsibility shall not be delegated in whole or part to subcontractors or suppliers. These submittals may be prepared by the Contractor, subcontractors, or suppliers, but the Contractor shall ascertain that submittals meet all of the requirements of the Contract Documents, while conforming to structural, space, and access conditions at the point of installation. Designation of work "by others," if shown in submittals, shall mean that the work will be the responsibility of the Contractor rather than the subcontractor or supplier who prepared the submittals. The Contractor shall insure that there is no conflict with other submittals and notify the Construction Manager in each case where its submittal may affect the work of another contractor or the Owner. The Contractor shall insure coordination of submittals among the related crafts and subcontractors.
- C. Submittals shall be prepared in such form that data can be identified with the applicable Specification paragraph. The data shall clearly demonstrate compliance with the Contract Plans and Specifications and shall relate to the specific equipment to be furnished. Where manufacturer's standard drawings are employed, they shall be marked clearly to show what portion of the data is applicable to this project.

1.2 DEVIATIONS FROM THE CONTRACT

- A. If the submittals show any deviations from the Contract requirements, the Contractor shall submit with the submittal submission a separate written description of such deviations and the reasons therefore. If the Owner accepts such deviation, the Owner shall issue an appropriate Contract Change Order, except that, if the deviation is minor, or does not involve a change in price or in time of performance, a Change Order need not be issued. If any deviations from the Contract requirements are not noted on the submittal, the review of the shop drawing shall not constitute acceptance of such deviations.

1.3 SUBMITTAL COMPLETENESS

- A. The Contractor shall check all submittals before submitting them to the Construction Manager and shall certify on the transmittal letter and on each shop drawing that they have been checked, are in compliance with the Plans and Specifications, and all deviations from the Contract requirements are noted.
- B. If the Contractor submits an incomplete submittal, the submittal will be returned to the Contractor without review. A Complete submittal shall contain sufficient data to demonstrate that the items comply with the Specifications, shall meet the minimum requirements for submissions cited in the technical specifications, shall include materials and equipment data

and seismic anchorage certifications where required, and shall include any necessary revisions required for equipment other than first named.

- C. It is considered reasonable that the Contractor shall make a complete and acceptable submittal to the Construction Manager at least by the second submission of data. The Owner reserves the right to deduct monies from payments due the Contractor to cover additional costs of review beyond the second submission.

1.4 SUBMITTAL PERIOD

- A. All submittals shall be completed within fifteen (15) days after Notice to Proceed by the Owner, unless the Construction Manager accepts an alternate schedule for submission of submittals proposed by the Contractor.

PART 2. PROCEDURES

2.1 NUMBERING

- A. Submittal numbering: Numbers shall have the following format: XXXXX - YY, where XXXXX is the 5 digit CSI section number and YY is the sequential number assigned by the Contractor. Resubmittals shall have the following format: XXXXX - YY- Z where XXXXX - YY is originally assigned submittal number and Z is the sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, or 3rd resubmittal.

2.2 DEFINITIONS

- A. "Shop Drawings" are drawings, diagrams, schedules, and other data specially prepared for the work by the Contractor or any Subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the work.
- B. Shop Drawings also include:
 - 1. Product data specifically prepared for this project.
 - 2. Shop or plant review and test reports, when made on specific materials, products, or systems to be used in the work.
 - 3. "Product Data Submittals" are illustrations, standard schedules, performance charts, instruction brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.
 - 4. "Samples" are physical examples which illustrate materials, equipment, or workmanship and establish standards by which the work will be judged.
 - 5. "Informational Submittals" are submittals identified in the Contract Documents as to be submitted for information only.

2.3 SUBMITTAL SCHEDULE AND LOG

- A. Before making the first product submittal, prepare and submit a typed Schedule of Submittals.
- B. The Schedule of Submittals shall be based upon the Contractors review of all Sections of the Specifications and prepared as follows:

1. List all required submittals by Construction Specifications Institute (CSI) number, in the order of the Table of Contents of these specifications.
 2. Indicate whether an item is to be submitted for review or as an information Submittal.
 3. Indicate date when review of submitted item must be complete in order not to adversely affect the project schedule. Allow seven (7) calendar days for initial submittal review.
- C. Once the Schedule of Submittals has been completed, the Contractor shall provide to the Construction Manager a Submittal Log for approval by the Construction Manager. The Submittal Log shall coincide with the Submittal Schedule and shall list an activity number for each submittal, which corresponds to the activity of the Construction Schedule. The log shall provide dates for the following: scheduled from, submitted, schedule back, returned and status. The log should describe the Submittal Action, and the source of the submittal. A monthly update of the Submittal Log shall be provided in the form of a Submittal Action Report. The Submittal Log shall be provided within seven (7) days of Notice to Proceed.
- D. Submit to Architect as an Informational Submittal

2.4 FORM OF SUBMITTALS

- A. Sheets larger than 11" x 17" inches
1. Sheet size: 30" x 42", maximum
- B. Exception: Full size pattern or template drawings.
1. Number of copies: Allow for three (3) to be retained by the CM and three (3) to be retained by the Architect and/or Engineer.
- C. Submittals for Review
1. One (1) electronic copy
 2. One (1) reproducible print, not folded and three (3) blue or black-line prints, bound in sequence. To be determined
 3. One (1) marked up reproducible and one (1) blue or black line will be returned to Contractor. To be determined
- D. Informational submittals:
1. One (1) electronic copy
 2. Two (2) copies, blue or black-line prints, or photocopies, bound in sequence. To be determined
 3. No copies will be returned.

- E. Small Sheets or Pages (including Product Data):
 - 1. Minimum Sheet size: 8-1/2 x 11 inches
 - 2. Maximum sheet size for opaque copies: 11 x 17 inches
 - 3. Number of copies: Allow for three (3) to be retained by the CM and three (3) to be retained by the Architect and/or Engineer.
- F. Transparencies:
 - 1. One (1) reproducible and three (3) prints bound in sequence.
- G. Opaque Copies:
 - 1. For review. Six (6) copies. Three (3) copies will be returned.
 - 2. Informational submittals: Two (2) copies.
- H. Samples:
 - 1. Three (3) sets of each.
 - 2. Size not to exceed 10' x 10" maximum.
 - 3. One set will be returned.
- I. Copies in excess of the number requested will not be returned.

2.5 SUBMITTAL PROCEDURES

- A. All submittals shall be identified with the job name, location, and Construction Manager's job number and CSI specification section number. They shall be reviewed, stamped with a Contractor-reviewed identification stamp, and have the signed approval of the Contractor, prior to submission to the Construction Manager. Each sheet of drawings, both prints and transparencies, shall be so identified and signed.
- B. Bound sets of brochures, catalog sheets, specifications and material lists shall include an index sheet, completely identifying the entire contents of the submittal in sequential order.
- C. Construction Manager will return to the Contractor the transparency of drawings stamped and signed with the correction, if any. Contractor shall make copies from the transparencies at his own expense.
- D. Notations by Construction Manager, which increase Contract Cost or time of completion, shall be brought to Construction Manager's attention before proceeding with work.

E. Coordination of Submittals

1. Coordinate preparation and processing of submittals with performance of the Work. Coordinate each separate submittal with other submittals and related activities that require sequential performance.
2. Coordinate submittal of different units of interrelated work so that no submittal will be delayed by the Construction Manager's need to review a related submittal. The Construction Manager reserves the right to withhold action on any such submittal until the related submittals are received.

F. In particular, if colors or finishes are to be selected from submitted items, the Construction Manager may make no selections until all items are submitted.

G. Timing of Submittals

1. Prepare and transmit each submittal requiring approval sufficiently in advance of scheduled performance of the work to which it related to allow for adequate review and processing time, including time for resubmission if necessary.
2. Prepare and transmit each informational submittal prior to start of the work involved, unless the submittal is of a type which cannot be prepared until after completion of the work; submit promptly.
3. No extension of time will be authorized because of the Contractor's failure to transmit submittal sufficiently in advance of the work.
4. Transmittal of Submittals:
 - a. Submittals will be accepted from the Contractor only. Submittal received from other entities will be returned without action.
 - b. Transmit each submittal with a duplicate transmittal form. Submittals received without a transmittal form will be returned without action.
 - c. Transmittal form: Use a form acceptable to the Construction Manager.
 - d. Only one submittal (or related items) per transmittal.

H. Shop Drawings

1. Content: Include the following information:
 - a. Dimensions at accurate scale.
 - b. Specific notation of field measurements at accurate scale.
 - c. Identification of specific products and materials used.
 - d. Details, identified by Contract Document sheet and detail numbers.
 - e. Compliance with specified standards.

- f. Coordination requirements; show relationship to adjacent or critical work.
 - g. Name of preparing firm, contact person, phone number.
- I. Preparation
- 1. Do not reproduce Contract Documents as Shop Drawings.
 - 2. Identify as indicated for all submittals.
 - 3. Allow space for Construction Manager's action; marking shall be adjacent to the title block.
- J. Product Data
- 1. Submit all product data submittals for each system or unit of work as one submittal. Include with Shop Drawings when Shop Drawings are required.
 - 2. Where product data submittals must be prepared specifically for this project because standard printed information is not suitable for use, submit such information as Shop Drawings and not as product data submittals.
- K. Content:
- 1. Submit manufacturer's standard printed data sheets.
 - 2. Identify the particular product being submitted; submit only pertinent pages.
 - 3. Show compliance with properties specified.
 - 4. Mark to show which options or accessories are applicable to the project.
 - 5. Include recommendations for application and use.
 - 6. Show compliance with specified standards.
 - 7. Show compliance with specified testing Owner listing; show the limitations of their labels or seals, if any.
 - 8. Identify dimensions which have been verified by field measurement.
 - 9. Show special coordination requirements for the product.
- L. Samples
- 1. Provide samples physically identical with proposed material or product.
 - 2. Where unavoidable variations must be expected, submit "range" samples, minimum of 3 units, and describe or identify variations among units of each set.
 - 3. Where selection is required, provide full set of all options.
 - 4. Where matching of a sample prepared by other entities is required, prepare sample to match.

M. Mock-Ups:

1. Mock-ups required are specified in other Sections. Construct mock-ups as specified for actual work, with all components required for a complete installation. Erect specified mock-ups in locations indicated. Where mock-ups are to be removed, clear area after removal of mock-up and return to original or specified condition. Where mock-ups are to be approved by the Construction Manager, obtain approval of the Construction Manager prior to proceeding with installation.

N. Preparation:

1. Mount, display, or package samples in a manner to facilitate review.
2. Attach a description to each sample.
3. Attach a name of manufacturer or source to each sample.
4. Provide minimum of 4" x 4" space for Construction Manager's review stamp.
5. Where compliance with specified properties is required, attach documentation showing compliance.
6. Where there are limitations in availability, delivery, or other similar characteristics, attach description of such limitations.
7. Where samples are specified to be returned for incorporation into the work, indicate such requirements on transmittal form.
8. At the option of the Construction Manager, samples may be subject to testing in such event, additional samples as may be required shall be supplied by the Contractor at no additional cost.
9. Maintain final sample set(s) at the Project Site, available for use during progress of the work.
10. Prepare and distribute additional sets to other entities involved in work represented by the samples, as required for proper performance of the work.

O. Review of Submittals

1. Submittals for approval will be reviewed, marked with appropriate action by the Construction Manager and returned to the Contractor. The time required for review will be dependent on the size, complexity, and quality of the submittal as well as the number of other concurrent submittals but, generally should not exceed twenty-one (21) days for the first-time submittals and seven (7) days for resubmittals.
2. Informational Submittals: Submittals may be informally reviewed; no data is returned.
3. Submittals not stamped by Contractor and submittals which, in Construction Manager's opinion, are incomplete, contain numerous errors, or have not been checked or have only been checked superficially will be returned to Contractor unreviewed for resubmittal.

4. Owner shall be responsible for Construction Manager's cost of reviewing and processing each submittal and the first resubmission. Contractor shall be responsible for Construction Manager's cost of reviewing and processing required subsequent resubmissions of each submittal.
 5. Cost for such reviews shall be deducted from Contract Sum by Change Order.
- P. Return, Resubmittal, and Distribution
1. Submittals will be returned to the Contractor by mail unless Contractor makes other arrangements.
 2. Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by the Construction Manager.
 3. Exception: Transmittal shall indicate that this is a resubmittal.
- Q. Distribution:
1. Make one copy for project record documents.

2.6 SUBMITTAL PERIOD

- A. All submittals shall be completed within 4 weeks (20 working days) after Notice to Proceed by the Owner, unless the Construction Manager accepts an alternate schedule for submission of submittals proposed by the Contractor.

PART 3. EXECUTION

3.1 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

- A. The Construction Manager's favorable review of submittals shall be obtained prior to the fabrication, delivery and construction of items requiring submittal review.
- B. Favorable review of submittals does not constitute a change order to the Contract requirements.
- C. The favorable review of all submittals by the Construction Manager shall apply in general design only and shall in no way relieve the Contractor from responsibility for errors or omissions contained therein. Favorable review by the Construction Manager shall not relieve the Contractor of its obligation to meet safety requirements and all other requirements of laws, nor constitute a Contract Change Order. Favorable review by the Construction Manager will not constitute acceptance by the Construction Manager of any responsibility for the accuracy, coordination, and completeness of the submittals or the items of equipment represented on the submittals.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes general quality control requirements.
 - 1. General quality control.
 - 2. Manufacturers' field services.
 - 3. Inspections
- B. Related Requirements:
 - 1. Refer to applicable codes and specifications sections for test requirements.

1.2 QUALITY CONTROL, GENERAL

- A. Contractor shall maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- B. All materials and equipment shall be new and of the specified quality and equal to the samples found to be acceptable by the Design Consultant if samples have been submitted. It shall be the duty of the Contractor to call the Construction Manager's attention to apparent errors or omissions and request instructions before proceeding with the Work. The Construction Manager may, by appropriate instructions, correct errors and supply omissions not involving extra cost, which instructions shall be as binding upon the Contractor as though contained in the original Contract Documents.
- C. At the option of the Construction Manager, materials and equipment to be supplied under this Contract will be tested and inspected either at their place of origin or at the site of the Work. The Contractor shall give the Construction Manager written notification at least 30 days prior to the shipment of materials and equipment to be tested and inspected at point of origin. Satisfactory tests and inspections at the point of origin shall not be construed as a final acceptance of the materials and equipment nor shall such tests and inspections preclude retesting or reinspection at the site of the Work.
- D. Inspection of the Work by the Owner, Construction Manager and/or Design Consultant shall not relieve the Contractor of its obligations to conduct comprehensive inspections of the Work and to furnish materials and perform acceptable Work, and to provide adequate safety precautions, in conformance with the intent of the Contract.

1.3 MANUFACTURER'S FIELD SERVICES

- A. When specified in respective specification sections, require manufacturer or supplier to have qualified personnel provide on-site observations and recommendations.
- B. Observe field conditions, including conditions of surfaces and installation.

- C. Observe quality of workmanship.
- D. Provide recommendations to assure acceptable installation and workmanship.
- E. Where required, start, test, and adjust equipment as applicable.
- F. Representative shall submit written reports to Owner's Designated Representative listing observations and recommendations.

1.4 INSPECTION

- A. All work and materials are subject to the inspection of the Construction Manager. The Contractor shall notify the Construction Manager before noon of the working day before inspection is required. If the Specifications, the Construction Manager's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give timely notice, in writing, of its readiness for inspection. Unless otherwise determined by the Construction Manager, all inspections shall be done only in the presence of the Construction Manager or its authorized representatives. The Owner, Construction Manager, Design Consultant and authorized government agents and their representatives shall at all times be provided safe access to the Work wherever it is in preparation or progress and to all warehouses and storage yards wherein materials and equipment are stored, and the Contractor shall provide facilities for such access and for inspection, including maintenance of temporary and permanent access. Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract, and improper work will be subject to rejection. Work and materials not meeting such requirements shall be made good, and unsuitable work or materials may be rejected; notwithstanding that such work or materials have been previously inspected by the Construction Manager or that payment therefore has been included in a progress estimate.
- B. No portion of any work or installed materials shall be covered or concealed in any manner whatsoever without first being inspected by the Construction Manager. If any work should be covered up without the approval or consent of the Construction Manager, the Construction Manager shall have the authority to require that such work be uncovered for examination; defective work, if any, corrected; and recovered at the Contractor's expense.

END OF SECTION

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes temporary construction facilities and temporary controls.
 - 1. Electricity and lighting.
 - 2. Temporary heat and ventilation.
 - 3. Water and sanitary facilities.
 - 4. Construction aids.
 - 5. Barriers.
 - 6. Cleaning during construction.
 - 7. Project identification.
 - 8. Field offices, telephone service, and storage.
 - 9. Site waste management.
 - 10. Removal.
- B. Contractor shall provide temporary construction facilities and temporary controls as required to conform to requirements of authorities having jurisdiction and complete the Work in accordance with these Contract Documents. Contractor shall be required to contact governing authorities to establish the extent of the temporary facilities and temporary controls required by such authorities.

1.2 ELECTRICITY AND LIGHTING

- A. Provide electrical service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.
- B. Provide lighting for construction operations.

1.3 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain specified conditions for construction operation, to protect materials and finishes from damage due to temperature and humidity.

1.4 WATER AND SANITARY FACILITIES

- A. Provide water service required for construction operations; extend branch piping with outlets located so water is available by use of hoses.

- B. Provide and maintain required sanitary facilities and enclosures.

1.5 CONSTRUCTION AIDS

- A. Noise, Dust and Pollution Control: Provide materials and equipment necessary to comply with federal, state, local and any permit requirements for noise, dust and pollution control.
- B. Fire Protection: Maintain on-site fire protection facilities as required by applicable authorities and insurance requirements.
- C. Dewatering: Provide and operate drainage and pumping equipment; maintain excavations and pier site and adjacent roadways free of standing water while complying with any federal, state, local and permit requirements affecting dewatering.

1.6 BARRIERS

- A. Barriers: Provide barriers as required to prevent public entry to construction areas and to protect adjacent properties from damage from construction operations, including but not limited to, a minimum 6 foot high commercial grade fence around the Work Site equipped with gates with locks.
- B. Barricades: Provide barricades as required by governing authorities.

1.7 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; recycle or dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.8 PROJECT IDENTIFICATION

- A. Project Sign: Provide minimum 32 square foot Project identification sign of wood frame and exterior grade plywood construction, painted, with exhibit lettering by professional sign painter.
 - 1. Design: As furnished by Owner's Designated Representative.
 - 2. Submit to Owner's Designated Representative any additional names or changes proposed to Project sign for prior written approval.
 - 3. Erect on site at location established by Owner's Designated Representative.
- B. Other Signs: Subject to approval of THE DISTRICT.

1.9 STORAGE

- A. Storage for Tools, Materials, and Equipment: Limit on-site storage to Project area; provide weather-tight storage, with heat and ventilation for products requiring controlled conditions.
- B. Maintain adequate space for organized storage and access.
- C. Provide lighting for inspection of stored materials.

1.10 SITE WASTE MANAGEMENT

- A. Site Waste Management: Comply with applicable regulations for diverting Project waste from landfill; aim for waste management goal of 50% or higher.
 - 1. Effect optimum control of solid wastes.
 - 2. Prevent environmental pollution and damage.
- B. Reports: Provide as required by authorities having jurisdiction.
- C. Recycling: Implement recycling program that includes separate collection of waste materials of types as applicable to Project; recycling program to be applied by Contractor and Subcontractors.
- D. Handling: Keep materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
 - 1. Clean contaminated materials prior to placing in collection containers.
 - 2. Arrange for collection by or delivery to appropriate recycling center or transfer station that accepts construction and demolition waste for purpose of recycling.
- E. Participate in Re-Use Programs: Rebates, tax credits, and other savings obtained for recycled or re-used materials shall accrue to Contractor.

1.11 REMOVAL

- A. Remove temporary materials, equipment, services, and construction prior to the inspection required for determination of Substantial Completion described in Section 01770.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore existing facilities used during construction to specified or original condition.

END OF SECTION

SECTION 01505
MOBILIZATION & DEMOBILIZATION

PART 1. GENERAL

- A. Mobilization shall consist of all work required to prepare the Contractor's equipment for transfer to the Work Site; transport equipment, labor, supplies and incidentals to the Work Site; prepare equipment for construction; and maintaining contractor's barge and equipment in working condition at the Work Site for the entire duration of the Project.
- B. Demobilization shall consist of all work required to prepare the Contractor's barge and equipment for transfer and removing all barge, equipment, labor and unused supplies and incidentals from the Work Site at the completion of the Work, including the clean-up of all land based staging areas used in the execution of the Work. Demobilization includes work required to remove all equipment, unused supplies and incidentals from the Work Site at the completion of the Work, including the clean-up of all land based staging areas used in the execution of the Work.

1.1 REQUIREMENTS

- A. The Contractor's plant and equipment to be used in performing the Work shall be of suitable size and efficiency to meet the Project requirements and will be subject to approval by THE DISTRICT or the Owner's Designated Representative.
- B. The Contractor agrees that the equipment, labor and materials will not be removed from the Work Site prior to completion and acceptance of the work, except by prior written consent of THE DISTRICT.
- C. Contractor shall, in the presence of the Owner's Designated Representative, inspect and document working condition of all equipment and systems. Owner's Designated Representative's documentation of such condition shall be submitted to THE DISTRICT in writing prior to demolition.

END OF SECTION

SECTION 01600

PRODUCT REQUIREMENTS

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes basic product requirements governing material and equipment.
 - 1. General product requirements.
 - 2. Product list.
 - 3. Quality assurance.
 - 4. Delivery, storage, and handling.

1.2 GENERAL PRODUCTS REQUIREMENTS

- A. Products include material, equipment, and systems.
- B. Comply with specifications, referenced standards, and applicable codes and regulations as minimum requirements.
- C. Provide new materials except as specifically allowed by Contract Documents.
- D. Materials to be supplied in quantity within a specification section shall be by one manufacturer, shall be the same, and shall be interchangeable.
- E. Materials to be salvaged and reused as specified in these contract documents and are to be protected and stored in a location and under conditions that will preserve them and prevent damage, theft, vandalism or other deterioration.

1.3 SUBMITTALS

- A. Product List: Within 15 days after award of the Contract, Contractor shall submit to Owner's Designated Representative, a complete list of major products proposed for installation, including the name of each manufacturer, trade name, and model. Contractor shall tabulate such products by specification number and title.

1.4 SUBSTITUTIONS:

- A. Refer to Section 01630 "Product Substitution Procedures" below.

1.5 QUALITY ASSURANCE

- A. Comply with industry standards and applicable codes except when these specifications require more restrictive tolerances or requirements.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Install products straight, true-to-line, and in correct relationship to adjacent materials, with hairline joints, free of rough, sharp and potentially hazardous edges.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Transport products by methods to avoid product damage, deliver in undamaged condition in manufacturer's unopened containers or packaging.
- B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
- C. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Arrange storage to provide access for inspection; periodically inspect to assure products are undamaged and are maintained under required conditions.
- F. Provide equipment and personnel to handle products by methods to prevent soiling and damage.
- G. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.
- H. Immediately remove damaged products from the Project and Work Site.

END OF SECTION

SECTION 01630

PRODUCT SUBSTITUTION PROCEDURES

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes the procedures which the Contractor must follow in order to request the substitution of materials, equipment, a product or components specifically identified in these Contract Documents. The procedure for such a request made prior to the submission of bids (the "Approved Equal Procedure") is different from the procedure for a request for substitution made after the submission of bids.

1.2 REQUEST FOR APPROVED EQUALS (PRIOR TO BID SUBMISSION)

- A. This section pertains to Contractor's requests for a substitution of product, equipment and/or material made prior to the submission of proposals ("Request for Approved Equal").
- B. It is understood that specifying a brand name or specific types of components, equipment and/or material in these Contract Documents shall not relieve the Contractor from its responsibility to furnish the end product in accordance with the warranty and contractual requirements. The bidder is responsible for notifying THE DISTRICT of any inappropriate brand names, or types of components and/or equipment that may be called for in these Contract Documents, and to propose a suitable substitute for consideration. If the phrase "or approved equal" is inadvertently omitted, it is implied after any brand name.
- C. Unless otherwise specifically provided in the Contract Documents, reference to any equipment, material, article or patented process by trade name, make, or catalog number shall be regarded as establishing a standard of quality and shall not be construed as limiting competition; and a bidder may, at its option, use any equipment, material, article, or process which, in the judgment of THE DISTRICT, is equal to that designated. To do so a bidder shall furnish, at its own expense, all test results, technical data, and background information required by THE DISTRICT in making the determination as to whether the proposed equipment, material or article or process, in the judgment of THE DISTRICT, is equal to that designated.
- D. THE DISTRICT and Engineer shall be the judge as to the comparative quality and suitability of alternative equipment, articles, material or process, and its decision shall be final.
- E. Requests for Approved Equals must be received by THE DISTRICT, in writing to San Mateo County Harbor District, to the attention of the Manager, Planning and Development, no later than 5:00 p.m. on the 15th day before scheduled bid opening. No such requests will be considered by THE DISTRICT if received after this date. Any Request for Approved Equal must be fully supported with technical data, test results or other pertinent information as evidence that the substitute offered is equal to or better than the requirements of the Contract Documents. In addition, any test requirements in the Contract Documents that pertain to an item under consideration for Approved Equal must be submitted with the Request for Approved Equal.

1.3 PRODUCT SUBSTITUTIONS DURING CONSTRUCTION

- A. For proposed product, equipment and/or material substitutions after Contract award, reference General Conditions, of these Contract Documents.
- B. Contractor is advised that approval for product substitutions after Contract award shall be difficult to obtain unless Contractor can make an adequate showing, in THE DISTRICT and Engineers discretion, that the specified product, equipment or material is unavailable through no fault of Contractor.

1.4 CONTRACTOR'S REPRESENTATION

- A. Requests for substitutions (both Requests for Approved Equal and requests for product substitution during construction) constitute a representation that Contractor:
 - 1. Has investigated proposed product and determined it meets or exceeds, in all respects, specified product.
 - 2. Will provide same warranty or longer warranty for substitution as for specified product.
 - 3. Will coordinate installation and make other changes that may be required for Work to be complete in all respects.
 - 4. Waives claims for additional costs that subsequently become apparent.
 - 5. Will pay costs of changes to Contract Documents, Drawings, details and Technical Specifications required by accepted substitutions.

1.5 USE OF APPROVED SUBSTITUTIONS

- A. Until THE DISTRICT approves a substitution in writing, Contractor shall not use, furnish, install or have on site any such materials or equipment.

END OF SECTION

SECTION 01700

EXECUTION REQUIREMENTS

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes execution requirements.
 - 1. Installer qualifications.
 - 2. Examination.
 - 3. Manufacturer's instructions.
 - 4. Installation.
 - 5. Cleaning.
 - 6. Protection.

1.2 INSTALLER QUALIFICATIONS

- A. Qualifications: Installers to have minimum five years successful experience installing items similar to those required for the Project, except for individuals in training under direct supervision of an experienced installer.

1.3 EXAMINATION

- A. Acceptance of Conditions: Contractors and installers shall be deemed to have examined substrates, areas, and conditions for compliance with manufacturers' requirements for tolerances and other conditions affecting performance by beginning installation of any product.
- B. Field Measurements: Take field measurements as required to fit Work properly; recheck measurements prior to installing each product.
 - 1. Where portions of Work are to fit to other construction verify dimensions of other construction by field measurements before fabrication; allow for cutting and patching in order to avoid delaying Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

1.4 MANUFACTURER'S INSTRUCTIONS

- A. Manufacturer's Recommendations: When any aspect of the Work is required to comply with manufacturer's recommendations or instructions, copies of such recommendations or instructions must be distributed to all persons involved in such work and one set shall be maintained in the field office.
- B. Perform Work in accordance with details of recommendations and instructions and specified requirements.

1. In the event of a conflict between any specification contained in these Contract Documents and the recommendations or instructions of the manufacturer, consultation with Owner's Designated Representative shall be required.
2. Where manufacturer's recommendations or instructions merely supplement installation instructions, compliance with both sets of instructions shall be mandatory.

1.5 INSTALLATION

- A. Pre-Installation Meetings: Installers and Suppliers must attend pre-installation meetings scheduled by Contractor.
- B. Comply with manufacturers' written recommendations and installation instructions unless more restrictive requirements are specified.
- C. Locate Work and components accurately, in correct alignment and elevation.
 1. Make vertical work plumb and horizontal work level.
 2. Install components to allow space for maintenance and ease of removal for replacement.
- D. Install products at time and under conditions to ensure best possible results; maintain conditions required for product performance until Substantial Completion.
- E. Conduct operations so no part of Work is subject to damaging operations or loading in excess of that expected during normal conditions.
- F. Securely anchor permanent construction in place, accurately located and aligned with other portions of Work.
- G. Allow for structure movement including thermal expansion and contraction.
- H. Make joints of uniform width; arrange joints as indicated, for best visual effect where not otherwise indicated.

1.6 CLEANING

- A. Cleaning During Construction: Contractors and installers shall comply with all applicable requirements contained in Section 01500 subsection 1.7 "Temporary Facilities and Controls" contained in this Division 1 of these Contract Documents.
- B. Final Cleaning: Execute final cleaning at Substantial Completion.
 1. Clean surfaces exposed to view; remove temporary labels, stains and foreign substances.
 2. Clean site; sweep paved areas.
 3. Remove waste, surplus materials and rubbish from Project and Work Site; recycle to maximum extent feasible.

1.7 PROTECTION

- A. Protect products subject to deterioration. Provide ventilation to avoid condensation and trapping water.
- B. Take care to use protective covering and blocking materials that do not soil, stain, or damage materials being protected.

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1. GENERAL

1.1 SUMMARY

- A. This section describes procedures for Contract Closeout.
 - 1. Substantial Completion.
 - 2. Final completion.
 - 3. Project Record Documents.
 - 4. Material and finish data.
 - 5. Operation and maintenance data.

1.2 SUBSTANTIAL COMPLETION

- A. Immediately prior to Substantial Completion of the Work or a portion of the Work, Contractor shall schedule any agency reviews as may be required for acceptability of the Work.
- B. When Contractor considers that the Work, or a portion thereof which THE DISTRICT agrees to accept separately, is substantially complete, the Contractor shall prepare and submit written notice of same as well as a comprehensive list of items remaining to be completed or corrected prior to final payment. This "Punch List" shall be submitted on a form pre-approved by Owner's Designated Representative and shall, at a minimum, be in tabular form with each segment of Work identified and listed separately. Contractor's failure to include an item on the Punch List does not alter Contractor's responsibility and obligation to complete all Work in accordance with the Contract Documents.
- C. Within a reasonable time of receipt of Contractor's Punch List, Owner's Designated Representative will make an inspection to determine whether the Work or portion thereof is substantially complete.
- D. If the inspection by Owner's Designated Representative discloses any item, whether or not included on the Contractor's Punch List, which is not sufficiently complete in accordance with the Contract Documents, THE DISTRICT shall promptly notify Contractor and add such items to Contractor's Punch List with a written explanation of any items added.
- E. Contractor shall remedy any such deficiencies and send THE DISTRICT a written notice as required in Paragraph 1.2.B. above requesting an additional inspection by Owner's Designated Representative to determine Substantial Completion.
- F. When Owner's Designated Representative determines the Work is substantially complete, Owner's Designated Representative shall prepare a Certificate of Substantial Completion complete with the following:
 - 1. Date of Substantial Completion;

2. Responsibilities of THE DISTRICT and Contractor respecting security, heat, utilities, damage to the Work, maintenance, and insurance;
 3. Time within which Contractor shall finish all items on the Punch List, which shall accompany the Certificate of Substantial Completion.
- G. The Certificate of Substantial Completion shall be submitted to THE DISTRICT and Contractor for their mutual written consent.
- H. Substantial Completion not to extend beyond the environmental work window of November 30, 2021.

1.3 FINAL COMPLETION

- A. Related Requirements. Contractor's attention is directed to General Conditions of these Contract Documents.
- B. Final Completion. When Contractor considers the Work complete, Contractor shall submit written certification to THE DISTRICT, including the post construction survey, indicating at least the following:
1. Work has been inspected for compliance with Contract Documents.
 2. Work has been completed in accordance with Contract Documents and deficiencies listed (in "Punch List") with Certificate of Substantial Completion have been corrected.
 3. Equipment and systems have been tested in presence of Owner's Designated Representative and are operational.
 4. Work is complete and ready for final inspection.
- C. Special Submittals: In addition to submittals required by Contract, submit the following.
1. Provide submittals required by governing authorities to governing authorities with copies included in Project Record Documents.
 2. Submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 PROJECT RECORD DOCUMENTS

- A. Contractor shall keep documents current and shall not permanently conceal any work until all required information has been recorded.
1. THE DISTRICT will provide Contractor with a separate set of Drawings to maintain for Project Record Documents.
 2. Store reproducible Drawings, one set of Contract Documents, and one copy of each Change Order for use as Project Record Documents separate from documents used for construction.

3. Indicate actual work on Drawings; indicate actual products used on Contract Documents, including manufacturer, model number and options.
 4. Update Project Record Documents daily and allow for Owner's Designated Representative inspection.
- B. At Contract closeout, Contractor shall submit documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor. Contractor shall submit Record Documents to Owner's Designated Representative in CD or DVD format acceptable to THE DISTRICT, as well as (2) hard copies (one full size and one-half size).

1.5 MATERIAL AND FINISH DATA

- A. Provide data for any new materials or equipment furnished.
- B. Submit two sets prior to final inspection, bound in 8-1/2" by 11" three-ring binders with durable plastic covers, clearly identified regarding extent of contents.
1. Electronic Format: Where available in electronic format, submit CD or DVD of material and finish data.
- C. Arrange by specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:
1. Trade names, model or type numbers.
 2. Cleaning instructions.
 3. Product data.

1.6 WARRANTIES

- A. For any new equipment installed during the Work, Contractor shall submit copies of manufacturers' warranties.
- B. These warranties shall be in addition to and not a limitation of other rights THE DISTRICT may have against Contractor under these Contract Documents or which may be afforded under the law.

1.7 SYSTEMS DEMONSTRATIONS

- A. Contractor shall demonstrate to Owner's Designated Representative that all equipment's and systems on the new private aids operate properly. At a minimum, systems and equipment shall operate as demonstrated during the pre-construction inspection described in Section 01505 (subsection 2.03). This demonstration shall be documented in the close out documents.

END OF SECTION

SECTION 02070
SELECTIVE DEMOLITION, SALVAGE FOR REUSE, AND UTILITY
PROTECTION

PART 1. GENERAL

1.1 DESCRIPTION OF WORK

- A. Work Included:
1. Carefully demolish and remove from the site those items scheduled to be so demolished and removed.
 2. Carefully remove and store off or on site those items scheduled to be reused. Replace these items as indicated on the drawings such that they are undamaged and fit for their intended purpose.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

1.3 SUBMITTALS

- A. Except for items specifically scheduled for reuse, demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site and disposed of in legal manner. The Contractor shall submit a detailed disposal plan to the Engineer. The disposal plan shall include the name, address and telephone number of the disposal site. The Contractor shall submit to the Engineer a signed manifest and trip ticket stating that the debris was disposed at the stated site within 24 hours after the material has left the site. The disposal plan shall be submitted to the Owner for review with the Form of Bid as Specified in the General Conditions.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Provide materials, not specifically described but required for a complete and proper execution of the Work, as selected by the Contractor subject to the review of the Engineer.

PART 3. EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until satisfactory conditions are corrected.

3.2 DEMOLITION

- A. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.

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- B. In company with the Engineer, visit the site and verify the extent and location of selective demolition required.
 - 1. Carefully identify limits of selective demolition.
 - 2. Secure the Engineer's review of the items scheduled for selective demolition.
 - 3. Demolish and remove the scheduled items.
- C. Prepare and follow an organized plan for demolition and removal of items.
 - 1. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere or excavation.
 - 2. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.
- D. Exercise all necessary care so as not to damage items scheduled to remain in place for reuse.
- E. Except for items specifically scheduled for reuse or to be turned over to the Owner, demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site and disposed of in accordance with all Federal, State and local regulations. Provide documentation to the Engineer that material has been disposed of in such a manner.

3.3 REPLACEMENTS

- A. In the event of demolition or damage caused to items not so scheduled to be demolished, promptly replace such items to the approval of the Owner and at no additional cost to the Owner.

3.4 ALTERATIONS TO REUSED ITEMS

- A. All alterations to reused items are to be of an equal standard to their original construction, or as otherwise indicated in these Specifications. The Contractor is responsible for ensuring that the dimensions of reused items are adjusted to suit the new construction. Drawings are to be presented to the Engineer for review prior to making any alterations; however, this review does not relieve the Contractor of his responsibilities as indicated elsewhere in this Contract.

END OF SECTION

SECTION 02151

SHORING

PART 1. GENERAL

1.1 DESCRIPTION OF WORK

- A. Work included: Provide shoring, temporary or permanent, at excavations and elsewhere as required to protect workmen, materials, other properties, and the public.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.
- B. Retain a qualified engineer, properly permitted to provide such services at the location of the Work, to design the shoring system and to inspect and report on the quality of its construction.
- C. Comply with pertinent requirements of governmental agencies having jurisdiction.
- D. Coordinate the shoring design and construction with:
 - 1. Soil investigation report prepared for this Work;
 - 2. Structural systems and sequence of construction established for the Work.

1.3 SUBMITTALS

- A. Prior to submitting shoring design for approval of governmental agencies having jurisdiction, submit the design to the Engineer for review. Include supporting calculations.
 - 1. The Engineer's review will not relieve the Contractor of his responsibilities under the Contract.
 - 2. Should changes in the shoring design be required subsequent to the Engineer's review, coordinate all such changes with the Engineer.
- B. Upon completion of construction of this portion of the Work, submit to the Engineer two copies of a letter signed by the approved shoring design engineer stating that, to the best of the shoring design engineer's knowledge, the shoring system was constructed in accordance with the arrangement reviewed by the Engineer.

PART 2. PRODUCTS

2.1 DESIGN

- A. Design a shoring system which will safely and adequately prevent collapse of new and existing structures, and parts thereof, which will permit construction of the Work to the arrangement and tolerances required under the Contract Documents.

- B. Secure all needed approvals, including those of governmental agencies having jurisdiction and of adjacent property owners if required, at no additional cost to the Owner.

2.2 MATERIALS

- A. Provide materials of all kinds as required for execution of the approved shoring system.

PART 3. EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Construct and install the shoring system in strict accordance with the design approved by the governmental agencies having jurisdiction, and in strict accordance with the space arrangement reviewed by the Engineer.

3.3 TEMPORARY SHORING

- A. All shoring shall be considered temporary, unless specifically designated as permanent by the Contract Documents or the Engineer.

3.4 PERMANENT SHORING

- A. In some cases, shoring may remain in place, as designated in the Contract Documents or by the Engineer. Permanent shoring shall not negatively affect the performance of the completed Work or anticipated future work. The Contractor shall secure the Engineer's review prior to covering permanent shoring. Permanent shoring shall become concealed upon the completed Work.

END OF SECTION

SECTION 02368

STEEL PILES

PART 1. GENERAL

1.1 DESCRIPTION OF WORK

- A. Work included: The work covered by this section of these Specifications consists of furnishing all plant, labor, supervision, equipment, appliances and materials and in performing all operations in connection with the installation of the steel pipe piles, all in strict accordance with this Section of the Specifications and the applicable Drawings and subject to the terms and conditions of the Contract.

1.2 SUBMITTALS

- A. Submit the pre-qualified list of subcontractors and the proposed schedule of unit prices to the Engineer for review.
- B. Submit technical data for all pile driving equipment proposed for use.
- C. No later than the time of delivery of materials to the site, submit steel certificates for review.
- D. Submit details for splices in piles, if used.
- E. Provide a minimum of five (5) days notice to the Engineer prior to driving any piles. Notify the Engineer of any changes in the schedule.

1.3 PRODUCT DELIVERY AND STORAGE

- A. The Contractor shall notify the Engineer twenty-four (24) hours in advance of delivery of steel piles. Contractor guarantees that steel piles shall be handled in such a manner as to not induce stresses which will damage the materials, and shall be sorted in a safe manner within designated areas provided at the site.

PART 2. PRODUCTS

2.1 STEEL SECTIONS

- A. Steel Pipe Pile:
 - 1. The steel pipe pile size and material shall be as specified on the Contract Drawings or equivalent as accepted by the Engineer. Steel material shall be ASTM A252, Grade 3 Modified with a minimum $F_y = 50$ ksi. Pile length shall be as shown on the Contract Drawings.
 - 2. Pipe piles shall have a minimum wall thickness as noted on the Drawings, and not less than 0.750 inches.
- B. Welding shall conform to AWS D1.1 Structural Code - Steel.

2.2 SPLICES

- A. No more than one splice per pile.

- B. No splice in lower 40 feet.
- C. Both upper and lower sections of pipe ends smooth, square and flat prior to splicing.

2.3 PILE POINTS:

- A. The piles for this project will not require pile points.

2.4 PROTECTIVE COATING

- A. Pipe piles shall be shop coated, on outer surfaces only, to a minimum of five (5) feet below the mudline elevation.

PART 3. EXECUTION

3.1 EQUIPMENT

- A. Drive piles with a hydraulically operated vibratory hammer with sufficient energy and energy transfer characteristics to drive the piles to the required toe elevations and capacity without damaging the pile head. Use care not to injure piles by over driving as would be indicated by rebound of hammer or staggering of pile. Cut off heads of piles accurately in accordance with the Contract Documents after completion of driving.
- B. Rig the pile driver with fixed leads to guide the hammer from highest to lowest points of travel in a manner permitting free vertical movements of the hammer, and with leads laterally braced to assure firm support of the piles during driving.
- C. The pile is to be located by temporary frames containing members of adequate size to guide and stabilize placement of the pile prior to driving. The frames shall be rigidly located such as to keep the pile plumb and in correct position while being driven.

3.2 PILE DRIVING

- A. Drive the piles straight and true at indicated locations, with deviation from the longitudinal axis of not more than 1/4 inch per foot.
- B. Locate the piles within 3 inches of the positions indicated on the Drawings.
- C. Continuously drive each pile to reach the capacity and/or full embedded length called for on the Drawings.
 - 1. Lengths shown on the Drawings are considered average values, and the actual lengths may vary when so accepted by the Engineer.
 - 2. Drive piles to achieve driving resistance penetration and refusal values as specified and as accepted by the Engineer.
- D. Use suitable cushions or driving heads to avoid damage to the piles, developing proper total driving energy, and directing the energy along the longitudinal center of gravity of the pile.
 - 1. Drive piles to their full penetration without bending, rupturing, or severely damaging the piles.

2. If failure in any of the above respects is encountered, pull the pile and drive a new pile at no additional cost to the Owner.
 3. If a replacement pile fails to develop full driving resistance, pull the replacement pile and drive a new pile with larger diameter at no additional cost to the Owner.
 4. A "soft start" may be required according to the regulatory permits. Contractor shall verify that all regulatory permit requirements are met for pile driving.
- E. Pre-drilling
1. Jetting to assist penetration will not be accepted unless accepted by the Engineer.
 2. Approved pre-drilling to assist penetration may be used where extreme driving resistance is encountered, or where vibrations from driving may be detrimental to adjacent structures.
 3. Make pre-drilled bores 80% of tip diameter and to 80% of the depth of penetration, reserving the lower phases of penetration solely for driving.
- F. Where piles are pushed up by pressure from driving of adjacent piles, re-drive as required and at no additional cost to the Owner.
- G. The Engineer will record pile driving information, including date of installation, pile number, pile type and installed length, type of hammer and rated energy, date of installation, blow counts, and final tip elevation.

3.3 SAFE LOAD CALCULATION

- A. Piles will not comply with a specific load requirement.

3.4 HANDLING, CUTTING AND FRAMING

- A. Handle piles carefully, without sudden dropping or excessive bending.

3.5 LENGTH AND LOAD REQUIREMENTS

- A. Required tip elevations as indicated on the Drawings.

END OF SECTION

SECTION 05110

WATERFRONT STRUCTURAL STEEL

PART 1. GENERAL

1.1 WORK SPECIFIED

- A. Work included: Provide miscellaneous structural steel items including but not limited to accessories as shown on the Drawings, specified herein, and needed for a complete and proper installation.

1.2 SUBMITTALS

- A. Sufficient technical data to demonstrate compliance with the specified requirements.
- B. Complete shop drawings detailing all members, profiles, sizes, spacing, proposed cuts, connections, camber, holes, openings, fasteners, and similar data. Erection plans showing the location and field connection of all members. Identify members by piece numbers which correspond to erection numbers. Structural steel connection details not specifically shown in the Contract Documents shall be detailed by the Contractor and included with shop drawing submittals.
- C. Submit manufacturer's certifications showing that the products meet or exceed the required standards for the following items:
 - 1. Bolts, including nuts and washers.
 - 2. Threaded rods including all hardware.
 - 3. Filler material and flux for welding.
 - 4. Expansion bolts.
- D. Submit Certified Mill Test Reports indicating structural strength, destructive and non-destructive test analysis, chemical and physical properties of each type of steel and conformance with ASTM A6.
- E. Submit welder's certificates certifying welders employed on the Work, verifying AWS qualifications within the previous twelve months.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Quality Assurance
 - 1. Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

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2. Perform welding with electric arc process and in accordance with AWS "Code for Arc and Gas Welding in Building Construction".
3. In addition to complying with pertinent codes and regulations, comply with:
 - a. The American Institute of Steel Construction, AISC, "Steel Construction Manual", Fifteenth Edition.
- B. Structural Steel Shapes shall conform to ASTM A992 or A572 Grade 50.
- C. Steel Angles, Channels and Plates shall conform to ASTM A572 Grade 50.
- D. Anchor rods shall conform to ASTM F1554, for Grades 36, 55 and 105.
- E. Carriage bolts and Lag screws shall conform to ASTM A307, Grade A.
- F. High Strength Structural Bolts: Shall conform to ASTM F3125 Grade A325 with hexagonal heads.
- G. Nuts: Shall be hexagonal and conform to ASTM A563.
- H. Washers (except against timber): Shall conform to ASTM F436.
- I. Welding Materials: AWS D1.1; Type E70XX or type required for materials being welded.
- J. Fabrication:
 1. Fabricate items of structural steel in accordance with AISC specifications and as shown on the accepted shop drawings.
 2. Properly mark materials for field assembly and for identification of the structure and location intended. Fabricate for delivery sequence which will expedite erection and minimize field handling of Materials.
 3. Provide bolts, nuts, and washers of all types and sizes required for completion of field erection.
 4. Comply with AWS code for procedures, appearance, and quality of welds, and methods used in correcting welded work.
 5. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates. No holes will be allowed unless first shown on the Shop Drawings and accepted by the Engineer.
 6. Should holes be required in addition to those provided under this Section, provide all such holes and strengthen the area as required to compensate but only as accepted by the Engineer.
 7. Moment connections shall develop the full strength of joined members. The cold weather welding requirements of AWS shall be required and enforced.

8. Where finishing is required, complete the assembly, including welding of units, before start of finishing.
 9. Provide finish surfaces of members exposed in the final structure free from markings, burrs, and other defects.
 10. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.
- K. Protective Coating
1. General: Unless specifically noted otherwise, all items scheduled to receive protective coating shall be fully fabricated with holes, cuts, threads, etc. prior to receiving protective coating, prior to delivery to site.
 2. Steel Sections: Unless specifically noted otherwise, all steel sections shall be hot dipped galvanized in accordance with ASTM A153.
 3. Bolts, Nuts, and Washers: All bolts, nuts, and washers shall be hot dipped galvanized in accordance with ASTM A153.
 4. Field Touch-Up of Epoxy-Coated Items: Shall be performed in accordance with Section 09905 of the Specifications.
 5. Field Touch-Up of Hot-Dipped Galvanized Items: Touch-up shall be performed with Tnemec 90-97 Tneme-Zinc primer or equivalent accepted by the Engineer. Surface preparation and coating application shall be in strict accordance with manufacturers written instructions.
- L. Other Material
1. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the review of the Engineer prior to final installation.
- M. Product Handling and Storage
1. Deliver materials to the job site properly marked to identify the location for which they are intended.
 2. Use markings corresponding to markings shown on the reviewed shop drawings.
 3. Store in a manner to maintain identification and prevent damage, off the ground, using pallets or other supports, and to permit easy access for inspection.

PART 3. EXECUTION

3.1 INSTALLATION

- A. Surface Conditions

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1. Examine the areas and verify the conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Erection

1. Surveys:
 - a. Establish benchmarks necessary for accurate erection of structural steel.
 - b. Check elevations of concrete surfaces, and locations of anchor bolts and similar items, before erection proceeds.
2. Temporary shoring and bracing:
 - a. Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads.
 - b. Provide temporary guy lines to achieve proper alignment of the structure as erection proceeds.
 - c. Remove temporary connections and members when permanent members are in place and final connections are made.
 - d. Field touch-up protective coating where damaged.
3. Field Assembly:
 - a. Set structural frames accurately to the lines and elevations indicated.
 - b. Align and adjust the members forming part of a complete frame or structure before fastening permanently.
 - c. Clean the bearing surfaces and other surfaces which will be in permanent contact before assembly.
 - d. Adjust as required to compensate for discrepancies in elevation and alignment.
 - e. Level and plumb individual members of the structure within specified AISC tolerances.
 - f. Establish required leveling and plumbing measurements on the mean operating temperature of the structure, making allowances for the difference between temperature at time of erection and the mean temperature at which the structure will be when completed and in service.
 - g. Comply with AISC specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to welds.
4. Gas cutting:

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- a. Do not use gas cutting torches for correcting fabricating errors in structural framing, except on secondary members where acceptable to the Engineer.
 - b. When gas cutting is permitted, finish the gas cut section to a sheared appearance acceptable to the Engineer.
5. Field Welding:
- a. Where field welds are scheduled, surfaces to be joined are to be properly prepared, including removal of any existing coatings prior to welding. Following welding, prepare and touch-up all areas requiring coating as set forth in Section 09905.

END OF SECTION

SECTION 09905

PROTECTIVE COATING

PART 1. GENERAL

1.1 WORK SPECIFIED

- A. The work includes: The furnishing of all plant, labor, materials, tools and equipment, and the performance of all operations and incidentals necessary for the coating, handling, storing and shipping of plant coated steel sheet piling, structural steel, and miscellaneous ancillary items.

1.2 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. The Owner, through the Engineer, reserves the right of approval of any Subcontractor pre-qualified and selected for this portion of the Work by the Contractor. Approval will be based, in part, on:
 - 1. Documented successful experience in performing work of a similar nature.
 - 2. Acceptable schedule of unit prices for measurement and payment in event of changes in the Work of this Section.
- C. Coating materials shall be handled, stored, and applied in accordance with the manufacturer's specifications, or as directed by an authorized representative of the coating manufacturer.
- D. All references to SSPC shall be interpreted as Steel Structures Painting Council.
- E. Structural steel fabrications shall be received by coating applicator free of all oil and grease.

1.3 SUBMITTAL

- A. Submit material certification data for the coating system to the Engineer for review no later than the time of delivery of materials to the site. Certification shall include a statement by the coating applicator that the protective coating was installed in strict accordance with manufacturers written instructions, including all surface preparation.

1.4 PRODUCT DELIVERY AND STORAGE

- A. The Contractor guarantees that material shall be stored in a safe manner within Owner-designated area provided at the site.

PART 2. PRODUCTS

2.1 EPOXY COATING

- A. Material used for factory epoxy coating of all scheduled surfaces shall be BAR-RUST 235 Multi-Purpose Epoxy Coating as manufactured by Devoe Coatings or equivalent accepted by the Engineer.
- B. Epoxy coating field touch-up material shall be identical to factory coating specified in paragraph 2.01-A above.
- C. The topcoat color for all surfaces is to be black.

PART 3. EXECUTION

3.1 SURFACE PREPARATION

- A. Surfaces shall be prepared in strict accordance with the protective coating system manufacturers written instructions. Surfaces are to be abrasion-blasted to a near-white surface cleanliness in accordance with SSPC-SP-10. Blast profile on steel shall be 1.5 to 2.5 mils in depth and be of a sharp, jagged nature as opposed to a "peen" pattern (from shot blasting). Surfaces must be sound, dry, clean, free of oil, grease, dirt, mildew, form release agents, curing compounds, loose and flaking paint, grit dust, and other foreign substances. Roto blasted surfaces are not acceptable.
- B. Surfaces requiring field touch-up shall be prepared as described in paragraph 3.01-A above.

3.2 PROTECTIVE COATING APPLICATION

- A. The protective coating shall be installed in strict accordance with manufacturers written instructions. Coating is to be applied in two coats to achieve a minimum overall dry film thickness of 15 mils.
- B. All holidays or other imperfections in the coating shall be removed or repaired at the Contractors expense prior to final acceptance of the Work.
- C. Surfaces requiring field touch-up of any required areas shall be prepared as described in paragraph 3.1-A above or by the following procedure:
 - 1. Clean all surfaces to be repaired per SSPC-SP1 Solvent Clean to remove chlorides and general surface contamination.
 - 2. Grind all welded areas to provide a smooth surface with no sharp edges.
 - 3. Feather existing coatings back to sound material.
 - 4. Clean all other surfaces to be repaired per SSPC-SP2 (Hand Tool Clean) or SSPC-SP3 (Power Tool Clean). Do not grind surfaces smooth; maintain adequate surface profile from original blast cleaning.
 - 5. Stripe coat all welds and edges with the epoxy coating prior to painting to insure adequate film thickness.

END OF SECTION